An Overview of Conservation Policy

Growth Management Act

In 1990, in response to concerns about increases in population, unchecked suburban sprawl, mounting traffic congestion and the impacts this rapid growth had on forest and agricultural lands and critical areas, such as wetlands and wildlife habitat areas, the state Legislature passed the Growth Management Act (GMA). The GMA required the fastest growing counties and their cities to plan comprehensively and cooperatively for future growth. Since then, all jurisdictions within the Puget Sound region have worked together to plan collaboratively for our future.

The GMA provides much of the land-use and regulatory framework necessary to accomplish salmon recovery under Endangered Species Act (ESA). The GMA requires that all urban counties and their cities develop and adopt comprehensive plans and regulations to implement these plans. The goals of the GMA emphasize conservation of resource lands, protection of critical areas, and coordination among neighboring jurisdictions concurrent with the accommodation of the projected growth. For further discussion of the GMA, see Chapters 4 and 7 of this report, as well as the Chapter 5 Appendix 5.1.

VISION 2020

More than a decade ago, a planning process was initiated in 1987 by the Puget Sound Regional Council, a regional growth and transportation planning agency for King, Kitsap, Pierce and Snohomish counties and their cities. This process resulted in the adoption of VISION 2020, which provides the policy framework for our regional growth strategy today. The VISION 2020 process was initiated prior to the adoption of the state's Growth Management Act in 1990, but is consistent with and supported by the goals of the GMA. That growth strategy envisions that growth will be concentrated into urban areas to protect rural and resource lands. The urban areas are further designated into urban centers to capitalize on the use of existing infrastructure, create opportunities to make our transportation system more efficient, and better leverage investment dollars.

Countywide Planning Policies

To achieve coordinated and consistent planning efforts, the GMA required that counties and the cities within them develop a set of framework policies to guide development of the comprehensive plans of each jurisdiction. The Countywide Planning Policies define the countywide vision and establish the parameters of the King County Comprehensive Plan as well as the comprehensive plans for each city in King County. The policies established the Urban Growth Area (UGA) and set direction for the County and cities about where growth is to be focused consistent with the GMA and the four-county regional VISION 2020 Plan.

King County Comprehensive Plan

The King County Comprehensive Plan provides policy guidance for managing growth in unincorporated King County. Protecting and restoring air

quality, water resources, soils, and habitats are among the County's primary goals. Several chapters of the Comprehensive Plan in particular establish the policy bases for our conservation efforts: Plan Vision, Land Uses, Natural Resource Lands, and Natural Environment. Many of our conservation programs are a result of the policy foundation established in the Comprehensive Plan. The following map shows King County's Unincorporated Areas.

Past and Continuing Salmon Conservation Programs

Over the years, King County has undertaken major efforts to protect salmon resources. These include watershed basin planning, water quality programs, studies on the potential use of water reuse, and open space and resource land purchases. Many local governments in King County have developed plans to protect rivers and control stormwater in five major watersheds. In just the past four years, more than $20 million has been invested to acquire critical habitat. We have implemented new regulations to improve protection of waterways, and have offered incentives to landowners so they will voluntarily protect critical habitat on their lands.

In order for a program to be included in this discussion and in the subsequent section on Early Actions, it must have conservation of salmon or their habitats as a first-order objective. The following describes King County's past and continuing efforts for salmon conservation.

Basin Planning Program History

The Basin Planning Program for King County Surface Water Management (SWM) Division (now the Water and Land Resources Division) began in 1987. It was formally concluded in 1995 when the Watershed Management Program was initiated. Implementation of basin plans developed during 1987-1995, was continued by staff in the Watershed Management Program as described below. This section describes the purpose, locations, process, schedule, funding, and transition of the Basin Planning Program to the Watershed Management strategy.

The purpose of the Basin Planning Program was to evaluate current and future conditions in drainage basins within the SWM service area – the unincorporated lands in the urbanizing western third of King County – and to evaluate and propose management plans for the surface waters in the basins. The plans were scientifically based, inter-disciplinary blueprints for the comprehensive management of surface water resources in the basins. The specific goals of the proposed management plans were:

- To restore hydrologic functions (mean and maximum flows and durations) to 1985 or pre-urban development conditions;
- To restore areas of existing water quality degradation and non-point source pollution (note that the water quality and non-point source pollution evaluation and management for the first three basin plans, Soos, Bear and Hylebos Creeks, was limited);
- To restore channel geomorphometry to protect existing fish habitat and areas of extreme erosion;

- To restore and/or create adequate drainage and conveyance systems to solve existing problems associated with urban development and to protect public and private property from drainage and conveyance problems associated with new urban development; and
- To develop regulations and programs to prevent future degradation of the physical, chemical (water quality) and biological structure and function of the surface waters within the basin planning area.

The Basin Planning Program evolved out of the Basin Reconnaissance Program which, using a scientifically based, interdisciplinary approach, evaluated the drainage and natural resources (including specific analysis of salmonid habitat) problems in the western urbanizing basins in King County during 1985-86. The findings of the Basin Reconnaissance Panel showed that significant drainage and natural resources problems existed in the western third of unincorporated King County.

The program findings served as the basis of the SWM services program, initiated by King County Council action in 1986. The findings suggested a priority for basin planning evaluations to first address the most rapidly urbanizing basins with high resources values, and secondly address more slowly urbanizing basins with lower resources values.

This priority led to the development of seven basin plans during the eight years of the program in the following order: Soos Creek (including Covington and Jenkins Creeks), Bear (and Evans) Creek, Hylebos Creek and Lower Puget Sound drainages, East Lake Sammamish Basin, Issaquah (and Tibbetts) Creek, Cedar River, and May Creek. A reduced or reconnaissance level of evaluation of problems and management needs was also completed during the eight years for the pre-dominantly unincorporated middle Green River drainage, Boeing Creek, and Swamp Creek. The Des Moines Creek Basin Plan was initiated by Basin Planning Program and inter-jurisdictional staff in 1995 but was completed by the Central Puget Sound Watershed Team. In all, the completed basin plans covered 96 percent of the SWM service area based on land acreage.

In areas where parts of the basin planning area were incorporated either prior to, or during, the basin planning process, interlocal agreements were developed to support policy coordination, technical review and cost sharing. Such interlocal agreements were developed for the Bear, Hylebos, Issaquah, Cedar and May Creek Plans.

The process for basin plan development involved three separate elements: evaluation of current and future conditions; evaluation of appropriate management options to meet the above goals; and community and technical review and involvement. The basin planning process was interdisciplinary and involved extensive field analysis of land and water resources, problems and solutions within the basin by land-use planners, geologists, hydrologists, ecologists, and engineers. Specific analysis of significant resource areas including salmonid habitat was included in the plan analysis of problems and solutions. A key element of the basin plans was the development of continuous flow hydrologic models for both current and future (zoned capacity) land use. The results of the modeling efforts were used to analyze future management options for the basins regarding drainage and habitat protection and restoration.

Typically, the plans recommended a three-part strategy for management that included regulatory, programmatic and capital solutions to solve existing and prevent future problems. The plans recommended drainage standards; sensitive areas standards (especially in regard to wetlands, riparian areas, and steep slopes); clearing and erosion control standards and best management practices (BMPs); water quality BMPs; zoning changes; technical assistance and stewardship programs; incentive programs for land management (e.g., current use taxation programs); capital projects to restore conveyance, drainage and habitat; and land acquisition in the later plans. Analysis of non-point source pollution problems and solutions was funded for the East Lake Sammamish, Issaquah and Cedar River Basin Plans under Centennial Grant Nonpoint Action Plan Program.

Analysis of current and future conditions and development of basin plan recommendations involved a substantial community and agency involvement process. Basin Advisory Teams, consisting of citizens within the basin, and Technical Advisory Teams, consisting of jurisdictional, state and tribal technical staff, participated in all aspects of the analysis of problems and evaluation of management options for the plans. In plans that included state funding for non-point source pollution control, Watershed Management Committees were forms to review and approve plan recommendations prior to submittal to the Washington Department of Ecology (DOE) following the mandates of WAC 400-12, for the development of non-point action plans.

All basin plans were adopted by the King County Council and, if appropriate, relevant city councils, as functional plans under the King County or relevant city Comprehensive Plan. Interlocal agreements were also developed to define implementation and funding responsibilities for basin plans that included incorporated areas. Basin stewards were hired to coordinate implementation of the adopted basin plans and to coordinate continuing involvement of the community in plan implementation.

The Basin Planning Program ended in 1995 following publication and adoption of the Status Report and Policy Recommendations (June 1994) and the Regional Needs Assessment Report and Recommendations (July 1995). These two documents concluded that the development and implementation of comprehensive basin plans by King County was no longer appropriate given the multi-jurisdictional nature of the majority of drainage basins in the county and the need to develop a multi-governmental approach to managing water quality, fish habitat and flooding, across whole watersheds and not just within single basins. The recommendations in these two documents led to the development of the inter-jurisdictional Watershed Forums and the development of the Regional Needs Assessment projects and programs and funding initiatives described in Chapters 7 and 8 of this report.

Habitat Restoration and Open Space Acquisitions

Under the Endangered Species Act, the highest priority of action is to conserve core areas of remaining, viable salmonid habitat and the watersheds critical to such habitat. Core salmon habitat and watershed lands can be permanently preserved through direct acquisition or purchase of conservation easements to provide the highest level of protection.

King County's resource lands acquisition program efforts over the past 30 years rivals that of any metropolitan region in America. The programs have preserved some of the critical "core" elements of our regional natural lands systems. Since the late 1960s, King County and its cities have enacted several major land acquisition programs that permanently preserved open spaces, farmlands and riparian habitat. While each of these programs has had a different focus, most of these lands preserved riparian habitat or beneficial watershed lands.

In all, since the late 1960s, King County and its cities have spent nearly $274 million to permanently preserve more than 29,000 acres of natural lands (see Table 1). Since 1990, more than $60 million in matching funds were obtained primarily from federal, state and city sources to purchase open space lands under the 1989 Open Space Bond, 1993 Conservation Futures Bond, and Waterways 2000. The other major public landowners are the State of Washington, with more than 85,000 acres of state Parks and Forests, and the United States Forest Service with 337,000acres, and municipal watersheds with more than 94,000 acres.

Table 1

Natural Lands Acquisition in King County-Since 1970
(3/1/99)

Programs	Amount	Acres Acquired	Funds Expended
COUNTYWIDE	**Total**	29,263	273,999,102
	Riparian	9,414	123,002,445
	Watershed	19,849	150,996,657
KING COUNTY	**Total**	26,542	162,769,776
	Riparian	7,660	71,665,774
	Watershed	18,882	91,104,002
CITIES	**Total**	2,721	111,229,326
	Riparian	1,753	51,336,671
	Watershed	967	59,892,655
ACQUISITONS BY WATERSHED			
Cedar/Lk. Washington	**Total**	7,166	138,108,603
	Riparian	4,548	60,849,016
	Watershed	2,618	77,259,587
Green River	**Total**	7,623	54,156,737
	Riparian	2,117	20,768,136
	Watershed	5,506	33,388,601
Puget Sound	**Total**	1,793	37,703,838
	Riparian	913	27,055,848
	Watershed	880	10,647,990
Snoqualmie	**Total**	10,779	36,797,895
	Riparian	1,836	14,329,445
	Watershed	8,943	22,468,450
White	**Total**	1,902	7,232,029
	Riparian		
	Watershed	1,902	7,232,029

Notes:

1. This list was not reviewed by cities or other agencies; This is preliminary information that can be updated.
2. The City totals included here reflect acquisitions from regional programs.
3. These figures represent information currently available to the King County RLOS Section.
4. This list likely represents much of the significant county and city open space acquisition activity in King County since 1970 to demonstrate the region's acquisition activity. There are, however, other acquisitions that are not reflected here.

Pre-1989 Programs

The following is a summary of major regional land acquisition programs within King County prior to 1990:

Forward Thrust (1969-1980): More than 4,000 acres of parks and 53 miles of waterfront were acquired in this far-ranging regional effort. Riparian habitat areas were acquired along corridors on the Cedar River, Soos Creek, May Creek, Coal Creek and the Sammamish River, along with numerous wooded parks that provide watershed protection functions. Many of these public lands offer an opportunity for habitat restoration. For example, more than 15 miles of publicly owned Sammamish River shoreline now is the setting for King County's volunteer native habitat restoration effort.

Farmlands Preservation Program (1980-1984): More than 12,000 acres of development rights were purchased on a voluntary basis to help save farming and preserve open space in King County. Located primarily in the Snoqualmie, Sammamish and Green River Valleys, these farmlands exclude further development harmful to salmon. King County also offers incentives to farmers to restore streamside habitat buffers and reduce agricultural runoff.

Programs since 1989

Since 1989, several nationally recognized resource lands acquisition programs have been implemented successfully by the King County Office of Open Space. (This office merged with another office in 1996 to become the County's Resource Lands and Open Space Section.)

Since early 1995, King County has focused more on salmon habitat-specific acquisitions, mainly under the largely completed Waterways 2000 pilot program. Waterways 2000 demonstrated that King County can successfully work with communities and landowners on a voluntary basis to preserve core salmon habitat areas. The program was limited to only six of 17 identified high-quality river basins for King County. (See following section for a discussion of Waterways 2000.)

The following is a summary of major, regional land acquisition programs within King County prior since 1989:

1989 Open Space Bond (1989-1997): More than 5,000 acres of open space was acquired in 116 projects under this program. Highlights included creation of Three Forks Park on the Snoqualmie River near North Bend, hundreds of acres of watershed preservation in the Issaquah Alps and more than 70 miles of regional trails.

1993 Regional Conservation Futures Acquisition Bond (1993-1997): This $60 million program permanently preserved more than 4,000 acres of open space through more than 60 projects by King County and its cities. All acquisitions were done on a voluntary basis.

Cedar River Legacy (since 1994): This program works in conjunction with the Cedar River Council to select habitat acquisition and restoration projects. It has no dedicated funding source. To date, approximately $7 million has

been expended to acquire 370 acres, including key habitat on Rock Creek and the main stem of the Cedar River.

Farms and Forests (1996): This program included $6 million to acquire demonstration rural forest projects at Taylor Mountain and Ring Hill, as well as additional Farmlands Preservation Program development rights easements.

1997 "Mini Bond:" King County created this $22 million program primarily with REET and Conservation Futures funds to acquire specific properties, including Taylor Mountain.

Waterways 2000

Waterways 2000 (1994-1997), initiated under the 1993 Conservation Futures Bond, is King County's premier salmon habitat preservation program. Working with scientists, stakeholders, communities and landowners, King County identified 17 stream basins with high-quality salmon habitat. Pilot project acquisition efforts were successfully completed on the Cedar, Green and Snoqualmie Rivers, and on Bear, Griffin and Patterson Creeks. The program also developed stewardship and maintenance practices for managing these lands. As shown on Table 2, more than 1,600 acres were permanently preserved on a completely voluntary basis. More than 300 acres were added to the Public Benefit Rating System (PBRS) current use taxation program through Waterways 2000. (See next section for discussion of the PBRS program.)

Table 2

WATERWAYS 2000 ACQUISITION PROGRESS - 6/30/98

Unincorporated King County	Fee Ownership (Acres)	Conservation Easements (Acres)	PBRS (Acres)	TOTAL (Acres)
Bear Creek	308	40	117	465
Cedar River	260	0	57	317
Green River	660	0	93	753
Griffin Creek	46	0	8	54
Patterson Creek	123	0	36	159
Mid-Fork Snoqualmie	177	0	23	200
Subtotal	1,574	40	334	1,948
Urban Program				
Seattle	5	0	0	5
Suburban Cities	19	0	0	19
Uninc. King County	10	0	0	10
TOTAL	**1,608**	**40**	**334**	**1,982**

Selection criteria: The Waterways 2000 program was a first attempt by the County to develop and apply ecosystem-based analysis to the conservation of salmonid habitats at a large scale. Characterized by some as a search for the "last, best places for salmon in King County," this program was based on the guidance of an independent, expert scientific panel and the work of staff and citizens from throughout the county.

The scientific panel crafted selection criteria based on indicators of ecological function at several system scales, from watershed indicators to species-based indicators. Using the criteria, the county's watersheds were screened

at successively smaller scales until reaches of high ecological integrity (embedded within watersheds of high ecological integrity) were identified. All properties within these reaches were considered equally preferable for protection. The criteria and indicators used in selection are listed in the table below:

Table 3

WATERWAYS CRITERIA	
Scale	Indicators
Basin Scale: 20-300 sq. miles	■ landscape condition ■ riparian condition ■ biotic condition ■ risk
Reach Scale: 1-7 miles	■ adjacent to other habitat types such as upland forest, wetlands ■ concentrated spawning and rearing ■ areas of biotic and habitat richness ■ forested riparian habitats ■ process areas such as braids, confluences, side channels

Once the properties were acquired, the County's participating agencies convened a work group to develop site plans to guide the protection and management of these areas. Those plans are still being formulated for most of the acquisition areas.

The following map shows the Tri-County Area with Waterways 2000 Basins.

Much good work took place in Waterways 2000 and the various basin plans to identify important salmon habitat and watershed areas for acquisition. King County recognizes that our natural systems, centering around our river systems, contain many unconnected "gaps" where lands are still threatened by development. There is a need to complete the permanent protection of these natural systems by acquiring additional key links and core areas in our systems that are threatened with development conversion. See "Early Actions" and Chapter 8 for the County's strategies for permanent preservation of core salmon habitat areas and their supporting watersheds.

Public Benefit Rating System

Another key preservation tool complementing Resource Lands and Open Space acquisition work is the county's "current use taxation" program, known as the Public Benefit Rating System (PBRS).

Through this program, King County offers an incentive to preserve open space on private property in King County by providing a tax reduction if the land contains one or more open space resources. This tax incentive establishes a "current use taxation" property tax assessment for the approved

open space land. This taxation is lower than the "highest and best use" tax assessment level that usually applies on most land in the County. The reduction in taxable value ranges from 50% to 90% for the portion of the property in "current use."

While these lands are not permanently protected, the program does provide valuable assistance to landowners who do not want to be forced into developing their property because of high property taxes. The program is very successful in preventing conversions to development, with several thousand acres of King County land currently enrolled.

The Public Benefit Rating System provides a scoring system, with a number of points being assigned to specific open space resources, through which a calculation of the current use taxation value is based. For property to be approved as open space under this program, either the potential for use or additional development must be present. The owner also may agree to other restrictions or provide public access in return for the tax reduction. Public access is encouraged, but not required, on open space resources for this program. In some cases, public access must be allowed in order to gain credit for the current use taxation.

For a complete description of the Public Benefit Rating System as well as a discussion of specific categories related to salmonid habitat preservation, see the Chapter 5 Appendix 5.2.

King County Livestock Management Ordinance

The King County Livestock Management Ordinance (LMO) enacted in 1993 was developed to support the raising and keeping of livestock in King County while minimizing livestock's negative impact on the environment, particularly with regard to impacts on water quality and salmonid fisheries habitat. Toward this end, the ordinance prescribes acceptable livestock densities, restricts access of livestock to Class I and II streams and wetlands, and establishes specific manure management requirements.

The LMO is an ordinance with a comprehensive approach to regulating a practice. The LMO is not one specific standard to prevent non-point pollution, but rather a set of standards that take into consideration the entire operation and addresses the various potential sources of contaminated run off, and how to eliminate them not only individually, but collectively.

Beyond the technical specifications and regulations governing how livestock should be managed, the ordinance also stipulates several actions to facilitate implementation of these regulations such as:

- Establishment of a Livestock Oversight Committee to advise and assist the County in implementing the Ordinance;
- Development of Farm Management Plans;
- Identification of the best management practices (BMPs) to be implemented on individual farms; and
- Development of a program to monitor the effectiveness of various management practices and their impact on water quality.

The King County Livestock Management Ordinance #11168 (LMO states that its "emphasis is on achieving compliance with LMO standards as the primary objective, rather than the collection of fines or penalties…" (21A.30.066 A. KCC)

In order to follow through on this approach and be fair to landowners, the Livestock Oversight Committee has spent four years educating livestock owners and reviewing the LMO process. By expanding education efforts and continuing to alert livestock owners of the LMO through media, letters and various classes, the County has and will continue to implement this Ordinance in a fair and consistent manner. Public awareness and understanding has risen considerably in the past four years. A key partner in this endeavor has been the King Conservation District, which has been assisting in education efforts and providing technical assistance to landowners and the Livestock Oversight Committee.

The King County LMO Cost Share program has been instrumental in helping to achieve the goal of more Farm Management Plans designed and improving the speed of overall implementation of best management plans (BMPs) prescribed in the plan.

Efforts are underway to map livestock operations on the GIS, and a survey of livestock owners will be completed this year. Together, these activities will provide more accurate data.

As stated above, one component of the LMO is the development of farm plans. Requests for farm plan assistance are being prioritized based on the following criteria.

KCD Farm Management Plan Request Priority List Criteria (initiated July 1998)

#1 High: Property on Class I or II stream or wetland not meeting management standards and/or has a documented valid complaint lodged against it.

#2 Medium: Number of livestock at or near density limit; serious mud problem; close proximity to Class I or II stream or wetland.

#3 Low: Those that don't fit in the above listings.

The enforcement provisions of the Livestock Management Ordinance became effective on January 1, 1999. In order to implement the strategy outlined above, staff from King County Livestock program, DDES and the King Conservation District, have developed a process for handling complaints.

Funding for the County's staffing of this program is derived from the $5 per parcel assessment for the King Conservation District. Ordinance 12959, approved by the King County Council in December 1997, adopted the Regional Water Quality Committee's recommendation to raise the Conservation District annual assessment from $1.25 per parcel to $5 per parcel. The $1.25 per parcel assessment had been in place since the King County Council adopted Ordinance 10981 in August 1993 and was renewed in 1995 by Ordinance 12095.

The Ordinance provides that the generated revenues be distributed as follows:

- $3 of the assessment is distributed to each of the five watershed forums in equal amounts;
- $1 per parcel to the County and each city in the District from which the funds were collected; and
- $1 per parcel to the District for implementation of its approved work program.

The Ordinance put the assessment in place for the years 1998 through 2000 and approved the district's 1998 work plan. The County's livestock staff is funded out of the $1 returned to the County or approximately $160,000.

Additional funding sources are also being investigated to assist in the education and enforcement effort. These include the following grants.

- An application was submitted in November 1998 for a two-year, $200,000 EPA Sustainable Development Challenge Grant, "Rural Salmon Recovery through Farm Planning."
- An application was submitted in January 1999 for a two-year, $100,00 Cooperative Resources for Extension Education Services CSREES Grant "Rural Salmon Recovery through Farm Planning"

Area Specific Habitat Plans: Elliott Bay-Duwamish Restoration Program

The Elliott Bay-Duwamish River Restoration Program resulted from a 1990 federal lawsuit based upon a complaint by NOAA (acting on the public's behalf) that alleged sediment contamination and habitat loss due to combined sewer overflow (CSO) and storm drain discharges by Metro and the City of Seattle. The lawsuit was settled by consent decree in December 1991.

The program's primary area of focus is the Lower Duwamish River and Elliott Bay, although the consent decree states that work can be conducted in "the Duwamish River and its tributaries." The settlement stipulated that Metro (now a part of King County government) and the City of Seattle provide a combination of cash payments, real estate and in-kind services with a total value of up to $24 million.

Seattle and Metro agreed to provide $12 million each to:

1. End the natural resource damage lawsuit brought by NOAA against Metro Water Pollution Control Department and the City of Seattle.
2. Clean up contaminated sediments and restore aquatic and benthic habitats in an urban waterway.
3. Create a partnership among federal, state, tribal and local governments to address common environmental concerns.
4. Use public funds for environmental improvements rather than for litigation.

Here is how the money is being allocated:

- $12 million is allocated to Sediment Remediation; $10 million is allocated to Habitat Restoration and up to $2 million may be spent on source control.
- As part of the above allocations King County (as the successor to Metro) and the City would make available real estate valued up to $5 million as sites for Habitat projects.
- Any sums not expended pursuant to the above conditions for planning and design or panel function and support and any interest accrued in the registry account would used for project implementation of sediment and habitat restoration projects.

Completed projects include:

- Pier 53 sediment remediation (cap) on the Seattle waterfront (4.5 acres); and
- West Seattle intertidal habitat restoration – Elliott Bay (2 acres).
- Porter Levee property purchase – Green River (30 acres)

Projects underway include:

- Norfolk CSO Sediment clean up – Duwamish River (1 acre);
- Northwinds Wier Habitat Restoration – Duwamish River (1.3 acre)
- Seaboard Lumber Habitat Restoration – Duwamish River (4 acres)
- Kenco Upper Turning Basin – Duwamish River (2 acres)
- Porter Leve property purchase – Green River (30 acres)

Projects anticipated in 1999:

- Hamm Creek Daylighting and Estuarine Habitat Restoration – Duwamish River (7.4 acres)
- Diagonal Duwamish CSO sediment cleanup – Duwamish River (5 acres)
- Burns Creek property purchase – Green River (30 acres)

Area Specific Habitat Plans: Green/Duwamish Ecosystem Restoration Study

The Green/Duwamish Restoration Study, currently in the feasibility phase of preparation, establishes a strategy to protect and restore the critical habitat that is needed for the survival of salmon and other fish and wildlife in the watershed. Led by the U.S. Army Corps of Engineers and King County, the study has engaged a large group of local, state, federal and tribal agencies and private organizations in data collection, analysis and development of study findings and recommendations. The findings and recommendations are summarized as follows:

1. The resources of the Green/Duwamish watershed are important to the Seattle metropolitan region, the Pacific Northwest and the nation as a whole.
2. Maintaining salmon runs and other resources will require protection and restoration of key habitat areas.
3. Wherever possible, riverine and watershed processes that form and maintain good habitat should be restored.
4. Initial restoration projects should be concentrated in critical areas of the watershed.
5. Protection and restoration of habitat should begin at once.

Based on the findings of the study and extensive consultation with other agencies, organizations and tribes, a restoration strategy has been devised. Strategy includes work on the following initiatives:

1. Critical rearing and feeding habitats should be reestablished at key sites in the Duwamish estuary.
2. Urban tributaries of the Duwamish and lower Green River that have high potential as productive salmonid habitat should be restored.
3. Fish passage and habitat values along the leveed portions of the lower Green River (between Auburn and Tukwila) should be improved consistent with flood protection goals in this reach.
4. Productive tributaries such as Soos Creek, Newaukum Creek and Mill Creek, should be protected through acquisition and land use regulations, and disturbed habitats along these tributaries should be restored for salmon spawning and rearing and other fish and wildlife use.
5. Channel diversity along the middle Green River should be restored through reestablishment of side channel and floodplain habitats.
6. The two mainstem dams on the upper Green River should be modified in design and operation to allow upstream and downstream migration of salmon and to enhance downstream habitat conditions.
7. Habitat conditions in the upper Green River watershed should be improved by restoring unused road corridors and protecting and restoring stream buffers.

Many of the projects recommended in the study are simple to achieve, including acquisition projects and capital improvements with uncomplicated designs. Work on these projects is proceeding under an "early action" category, using funding from a combination of federal, local and private funding sources. See the subsequent section, "Early Action Projects."

The complete project list (see Chapter 7 Appendix 7.10) is being reviewed and refined to assure the strongest possible combination of projects and

programs. Detailed environmental and engineering analysis for larger mainstem capital improvements or extensive negotiations for major programmatic changes is required for some of the projects. Through the continuing process of analysis, some projects may be determined to be infeasible or inconsistent with the goals of the study. Additional projects will be recommended based upon study team review. These initiatives will be pursued through continued federal and local cooperation in the Ecosystem Restoration Study.

Public Education and Outreach Efforts

King County is undertaking a large-scale public involvement and information effort to ensure that our citizens understand the importance of restoring the salmon runs and safeguarding our water supplies.

The following is a general description of the County's current education and outreach efforts. Generally, the purpose of these programs is to raise awareness among members of the general public or a targeted group of their connection to water resources and salmon, and how they can help improve water quality or protect salmon.

- **Water Quality Advertising Campaign:** A multi-jurisdictional advertising campaign to educate the general public about their connection to water quality and encourage personal behavior changes that will improve water quality (e.g. fix oil leaks, scoop pet waste, reduce use of fertilizers/pesticides). Uses high-profile TV, radio, and print ads. Cost: $100,000. Audience: reaches more than 500,000 viewers.
- **Natural Lawn Campaign:** A multi-jurisdictional advertising and public outreach campaign to educate the general public regarding the impact typical lawn care has upon water quality and water supplies, and to encourage personal behavior changes that will improve water quality and conserve water (e.g. use mulching mower, water lawns only once per week, reduce use of chemicals or use organic fertilizers). Uses high-profile TV, radio, and print ads, media events, and local community events. Audience: reaches more than 500,000 viewers.
- **School education programs:** Educators visit classrooms to teach K-12 students about their personal connection to water quality, household hazardous waste and resource conservation. Information is provided about personal behavior changes which students and their families can take to help protect water quality and conserve water and other resources. Cost: 2 full-time-equivalent (FTE) staff positions plus approximately $200,000. Audience: Reaches more than 15,000 students.
- **Educational workshops, tours, etc.:** Workshops, field trips, tours and other opportunities are provided for citizens to learn about their connection to water resources and ways they can help protect water quality and salmon in a hands-on setting. One example is the Cedar River Salmon Journey, in which citizens visit sites

along the Cedar River to watch spawning salmon and hear presentations from volunteer naturalists on salmon ecology and how they can help protect salmon. Cost: 4 FTE staff positions plus approximately $200,000. Audience: more than 2,500 participants.

- **Salmon/ESA Speakers' Bureau:** Trained staff and volunteer speakers present information about salmon, the Endangered Species Act, and how people can help protect salmon. Targeted audiences include business organizations, service clubs, community groups, schools, etc. Cost: 2 FTE staff positions plus approx. $10,000. Audience: estimated more than 3,500 persons for 1999.
- **Newsletters, brochures, and publications:** Newsletters with educational information about peoples' connection to water resources and how they can help protect water quality and salmon are distributed to targeted audiences. Newsletters include *Downstream News* (volunteer program and water quality), *County Tracks* (Parks interpretive program/wildlife information), *Farm and Forest* (water quality best management practices for resource lands). Brochures, fact sheets, and other publications provide focused educational messages about water resources and personal behavior changes people can make to help protect salmon. Cost: 3 FTE staff positions plus approximately $100,000. Audience: more than 60,000 people.
- **Volunteer habitat restoration and volunteer monitoring:** This program directly involves the public in hands-on restoration activities to teach them about water resources and provide meaningful improvement in salmon habitat. It involves volunteers in collection of monitoring data needed to track watershed management activities.
- **Riparian planting events:** Volunteers participate in hands-on activities to replant native vegetation in degraded riparian, wetland, estuarine or other critical habitat areas. Volunteers learn about the importance of riparian areas, native vegetation, and other habitat features. Nearly 15,000 plants were planted by volunteers in 1998. Cost: 4 FTE staff positions plus approximately $200,000. Audience: more than 1,500 active volunteers.
- **Native plant salvage program:** Volunteers salvage native trees and shrubs from construction sites and maintain salvaged vegetation until it is replanted in habitat restoration projects. Volunteers learn about the importance of native vegetation to riparian areas. Cost: .75 FTE staff position plus approximately $50,000. Audience: more than 200 active volunteers.
- **Habitat Partners Program:** Volunteers commit to maintaining new habitat restoration sites. Activities include weeding, watering, replanting, monitoring, and other enhancement activities. Cost: .5 FTE plus approx. $10,000. Audience: more than 200 active volunteers.
- **Volunteer monitoring programs:** Volunteers monitor numerous water resource parameters, including salmon spawner surveys,

wetland, lake and beach monitoring, etc. Data is collected according to specified quality assurance programs and is used in various watershed management programs. Cost: 3 FTEs . Audience: more than 350 active volunteer monitors.

- **Grant Programs:** The purpose of these programs is to provide seed funding to encourage community-based projects that educate the community and provide direct improvement to water resources and salmon habitat. Grant projects leverage considerable matching resources like volunteer labor and in-kind donations.
- **Watershed Action Grant program**: Grant recipients carry out projects to educate and involve the community on water resource issues or directly improve water resources or salmon habitat. Grants are available for community groups, schools, businesses and agencies. Cost: 2 FTE staff positions plus $60,000. Audience: directly involves 2,000; reaches more than 9,000 persons.
- **Water Stewardship Fund:** Funds community projects that protect or improve watersheds, streams, rivers, lakes, wetlands and tidewaters. The projects must protect or improve water quality, foster community stewardship, develop long-term partnerships, leverage resources, and have the assurance of a long-tern legacy. Grants are available for schools, agencies, community groups, tribes, and special districts. Cost: 1 FTE.
- **Urban Reforestation and Habitat Restoration grant fund:** Provides funding to volunteer organizations, community groups and government agencies for reforestation and habitat restoration projects within the urban growth area of King County. Cost: .5 FTE staff position plus approximately. $50,000.

Monitoring Efforts

Benchmark System for the Countywide Planning Policies

King County and its cities voluntarily developed and implemented a system of outcomes and indicators to evaluate jurisdictions' progress in implementing the Countywide Planning Policies under GMA. The benchmark system includes sections to measure progress on the environment and land use, which are relevant to salmon conservation strategies. See Chapter 5 Appendix 5.3 for a complete overview of the benchmark system.

Early Actions to Achieve Salmon Conservation

Since March 9, 1998, when it was first proposed that the chinook salmon be listed as "threatened," King County has initiated a number of early actions that clearly provide benefits to chinook salmon and their habitat.

These "early action" projects and programs are found in three places in this report. Most projects are discussed in this chapter in the following text and matrix. This text and matrix summarizes actions proposed to address three major areas of King County responsibility: regulation of new development,

provision of county services such as roads and wastewater treatment, and habitat improvements. Additional actions proposed by the WRIA Steering Committees are found in Chapter 7, and those recommended by the review panel of biologists are discussed in Chapter 6.

Note that the commitment to implement the early action recommendations described in this chapter varies. Some have been reviewed and approved by the King County Council; some have been funded through current budgets, and are firm commitments. Others have arisen through the systematic evaluation of County activities and require legislative action and funding before they are implemented.

Major Early Action Initiatives

There are eight major early action initiatives that King County will undertake in 1999 and 2000 that are the cornerstones of our short-term response to the ESA listing:

- Protecting and Restoring Habitat
- Improving Salmon Recovery through the County Comprehensive Plan
- Increasing Enforcement of Regulations
- Improving Protections for Sensitive Areas
- Increasing Review of New Development Proposals Through SEPA
- Improving Roads Maintenance Practices
- Monitoring Efforts: Freshwater Monitoring Assessments and Analysis
- Conducting Essential Research

Protecting and Restoring Habitat

King County will make a major commitment in its ESA response to protect and restore salmon habitat. This initiative will borrow on the programs described previously that have already protected thousands of acres of essential habitat in the County. Looking ahead, there are three key elements to the County's habitat initiative: a watershed-based process to identify and prioritize habitat needs, a funding strategy to provide the needed funds, and processes to implement the projects.

Identifying and prioritizing habitat needs will occur through the WRIA-based conservation planning strategy discussed in Chapter 7. The Steering Committees overseeing these conservation plans are already prioritizing projects in preparation for the FY 2000 federal budget process. Funding for current projects and fundraising for new habitat projects is discussed at length in Chapter 8 of this report. Project recommendations are also found in the matrix that concludes this chapter. For implementation of habitat projects, King County will continue the use of proven mechanisms, such as the science-based acquisition program Waterways 2000, and the use of specialized capital projects staff that have implemented basin plan capital recommendations.

Improving Salmon Recovery through the County Comprehensive Plan

Habitat is the one factor of decline that is greatly affected by the land use policies and development regulations of local governments. The State Growth Management Act (GMA) provides much of the land use and regulatory framework necessary for salmon recovery. Under the Countywide Planning Policies, urban development is concentrated within urban growth boundaries and rural areas are provided protection from urban encroachment. The Countywide Planning Policies also provide guidance for the development of individual jurisdictions' comprehensive plans. Accordingly, the King County Comprehensive Plan guides growth and development within unincorporated King County. First adopted in 1994, the Comprehensive Plan recognizes the need to protect threatened and endangered species through several policies. This year, the County is embarking on the first major review of the Comprehensive Plan since its adoption. The overriding goals for this review, called the 2000 Update, include improving the policy framework necessary to accomplish salmon recovery. Changes in the following areas can be anticipated:

- Land use designations may be revised as necessary to preserve and begin restoration of sensitive salmon habitat;
- Articulating the role of the County's resource lands, i.e., forests and farmland in protecting habitat vital to fish recovery;
- Acknowledging watershed-based recovery planning efforts in the Green, Cedar and Snohomish Watershed Recovery Inventory Areas (WRIAs);
- Addressing the impacts of transportation projects on fish habitat through more sensitive transportation planning.

Further detail is provided in Chapter 5 Appendix 5.1 and in the matrix following this section.

Increasing Enforcement of Regulations

The evaluation of County activities conducted to produce this report indicates that the framework of regulations and programs that King County has initiated to protect salmon is strong, but that enforcement of regulations has not been as aggressive as needed. In the 1999 budget, King County has made a substantial, new commitment by authorizing eight additional code enforcement officers to enforce salmon-related regulations.

This commitment, which is itemized in the matrix later in this chapter, includes new staffing for enforcement activities, additional training for enforcement staff, and additional monitoring to determine compliance with permitting conditions. The initiative focuses particularly on the key King County regulations affecting development along salmon-bearing streams and rivers: the Sensitive Areas Ordinance, Clearing and Grading code, and Surface Water Management regulations.

Improving Protections for Sensitive Areas

The principal tool for protecting sensitive areas from the impacts of land use and development in King County is the Sensitive Areas Ordinance (KCC 21A) adopted in 1990. The ordinance establishes regulations on new development to protect steep slopes, streams, and wetlands on or adjoining sites. Because it applies stringent standards across the entire unincorporated area, the SAO is a fundamental element of stream protection in King County.

In order to improve protections for salmon-bearing streams, King County is proposing to update the ordinance, increase enforcement of the regulations, and initiate an enhanced monitoring program to evaluate compliance and performance. Enforcement and monitoring are addressed in detail in the matrix in this chapter. For additional discussion of the Sensitive Areas Ordinance, please see the review of this program by the review panel of biologists in Chapter 6.

Increasing Review of New Development Proposals through SEPA

King County intends to undertake a comprehensive review of regulations relating to salmon and habitat through the conservation planning processes described in detail in Chapter 7. Changes to regulations also are likely to occur periodically as more intensive code review processes are undertaken and as conservation plans are completed. In the meantime, King County will initiate an interim process to ensure that proposed development and land use actions incorporate adequate protections for salmon and habitat.

The vehicle for interim consideration of development and land use proposals will be through the use of the State Environmental Policy Act (SEPA). The use of SEPA authority to condition permits for projects affecting salmon habitat is discussed in Chapter 4, and the early action recommendation for SEPA is discussed in detail as Addendum 1 of this chapter. It is anticipated that the enhanced SEPA review described in the Addendum will commence during the fourth quarter of 1999.

Improving Roads Maintenance Practices

All of the salmon-bearing streams and rivers within King County are paralleled or crossed by roads in places; some are bordered by major roads for most of their length. Maintenance practices for these roads can have a considerable impact on the quality of these waters. In order to ensure that maintenance practices on King County roads provide adequate protection for salmon and habitat, the county is initiating a review of the King County Department of Transportation's *Road Maintenance Best Management Practices Manual, Final Draft* with the National Marine Fisheries Service.

The manual focuses specifically on techniques that roads maintenance staff can use to contain sediment and prevent erosion while working in and along streams and waterways. In addition to addressing how to plan for erosion control for proposed projects, the manual deals with how to respond to emergencies. The manual also establishes recommendations for

training, monitoring, and adaptive management related to roads maintenance. The Best Management Practices have been included in the 1999 work program and budget for Roads Maintenance. The King County Council approved funding and staffing to begin BMP implementation this year. King County is committed to moving the manual into the King County Council adoption process as an administrative rule. Additional recommendations regarding roads maintenance and improvements are found in the following matrix. In addition, further discussion of early action recommendations related to roads maintenance is included in Chapter 5 Appendix 5.5.

Monitoring Efforts: Freshwater Monitoring Assessment and Analysis

The King County Freshwater Monitoring, Assessment and Analysis Program arose from the consolidation and integration of former Surface Water Management and Water Pollution Control Programs in 1998. The Program provides short and long-term evaluation of watershed health and watershed management efforts by collecting, synthesizing and evaluating physical, chemical and biological data.

Program Design

- Assess the present quality of lakes, streams, and other water resource areas, e.g. wetlands, shorelines, and beaches;
- Identify short- and long-term trends, existing or potential problems and suggest corrective measures;
- Provide water resource data and technical support in support of programs that protect water quality and abate point and non-point pollution, e.g., NPDES Program;
- Evaluate the effectiveness of watershed management planning and implementation activities, e.g., restoration projects;
- Identify regulations, programs, and capital projects that successfully protect aquatic resources from flooding and fish habitat degradation;
- Identify areas in need of protection or restoration; and
- Provide analytical tools to evaluate water quality impacts of potential future King County

Goals and Objectives

- Collect, analyze and report critical water resource (including biological and habitat) data for Lake Sammamish, Lake Washington, streams and other water bodies;
- Provide decision-makers and managers with information necessary to meet applicable legal requirements and evaluate programmatic goals for fisheries and water quality;
- Support development and implementation of the WRIA Plans, the RWSP (Regional Wastewater Services Plan), and associated HCP(Habitat Conservation Plan);

- Ensure compliance with the GMA (Growth Management Act);
- Provide for King County Comprehensive Plan implementation; and,
- Develop comprehensive models (assessment tool) to evaluate potential impacts to the Lake Sammamish, Lake Washington, Lake Union and Ship Canal systems.

For the years 2000 through 2004, the work program will refocus its efforts to more broadly address countywide water quality, habitat and biological factors for developing the ESA-related WRIA Plans, Wastewater HCP and assist in wastewater treatment plant and reuse facility siting. In addition, predictive models will be developed to assist in forming and assessing alternatives and assisting in evaluating recommendations for facility site selection, effluent discharge locations, water withdrawal, affects of locks operation and mitigating measures associated with wastewater system development and operations. Facilities or water related activities.

New Monitoring Initiatives 2000–2004: Element 1

King County Department of Natural Resources (KCDNR) will prepare WRIA-based Habitat Conservation Plans to respond to impending Endangered Species Act (ESA) requirements. The County also will initiate and implement the Regional Wastewater Services Plan (RWSP). The RWSP needs to be coordinated with and support King County's Endangered Species Act (ESA) requirements.

These two, closely related ESA response efforts will require an assessment of the present condition of King County water resources (an inventory and collection of chemical, biological and physical water resource data for lakes, streams, and other water resources areas), as well as monitoring the effectiveness both short term and long term recommendations of the WRIA-based conservation plans and the Wastewater HPC.

New Monitoring Initiatives 2000–2004: Element 2

The Seattle Water Department has identified sufficient drinking water to supply projected demand through 2014. The department has stated that wastewater reuse may potentially augment the supply after 2014.

The King County Executive has recommended that the Regional Wastewater Services Plan include $20 million to study the potential for reusing wastewater as a method to supplement the drinking water supply by allowing withdrawal of water from Lake Washington and/or other areas.

This program will assist in determining the effluent quality needed to prevent adverse environmental and human health impacts from a northern or southern discharge into Lake Washington. It will also assess the role of nonpoint pollution on the overall water quality of the Lakes Sammamish-Washington system and how these pollution sources may affect reuse options. The program also will address the local, state and federal regulatory constraints, freshwater withdrawals, and tribal concerns on the use of reclaimed water.

New Monitoring Initiatives 2000–2004: Element 3

- Projected regional growth and development requires enhanced water resource monitoring to ensure salmon recovery, public safety, public health and environmental quality.
- A mathematical model and risk assessment approach is being implemented to:
  - Model impacts of future actions that may affect regional water quality;
  - Provide a predictive tool to evaluate the water quality impacts of various land use and facility siting options;
  - Support the wastewater HCP;
  - Provide a long term comprehensive water quality analysis tool;
  - Determine the present quality of lakes, streams and other water resource areas, e.g. wetlands, shorelines, and beaches;
  - Identify short- and long-term water quality trends;
  - Identify existing or potential water quality problems and suggest corrective measures.

New Monitoring Initiatives 2000–2004: Element 4

The Modeling Assessment and Analysis Unit implements on-going programs and activities associated with freshwater quality management which is annually approved by Council budget and monitoring resolutions. On-going or baseline tasks and activities include water quality sampling, macroinvertebrate sampling, wetland monitoring, habitat and stream channel assessments and land-use monitoring, fish surveys, NPDES support, and hydrologic monitoring for various streams and lakes throughout King County. This includes maintaining data reported from about 28 rain gauges and 72 stream gauges; and water quality sampling and aquatic life survey work at more than 250 sites and 18 swimming beaches.

During 1999, efforts will be made to integrate past work products and activities, as well as new initiatives into the year 2000–2004 work program. Monitoring sites will be evaluated and some new monitoring locations identified. A review of historical data will also be conducted and evaluated.

Research

Urban Issues Study: Tri-County Salmon Recovery Strategy

On January 11, 1999, work began on an important piece of the Tri-County's overall salmon recovery effort, the Tri-County Urban Issues Study ("Study"). The Study begins with a thorough review of the existing scientific literature on salmon habitat and recovery efforts in urban areas. The objective is to provide a "state of the knowledge" regarding salmonid recovery and habitat requirements in urban areas. The Study will catalog and summarize all relevant documents, with special emphasis placed on studies and data being prepared for concurrent ESA response efforts within the Tri-County area.

The database will be held in hard copy, CD ROM format, and on an Access database so that the database will be available to all Tri-County participants.

The literature review will result in the identification of potential criteria that could prove suitable for use in assessing stream conditions within the Tri-County area. Once specific criteria and methods to evaluate conditions of urbanized streams and rivers are identified, application of the evaluation criteria will begin. In the application phase, candidate sites will be selected that represent a range of urban conditions. These sites will be useful for making comparisons between existing versus potential habitat quantity and quality. The sites also will be assessed for use as templates to guide future restoration and recovery efforts. The Study will provide the structure to use restoration efforts in the Tri-County area to improve the science of urban restoration activities.

The Study also will evaluate the sufficiency of existing stormwater and natural resource management practices and programs within the Tri-County region for protecting salmonids and salmonid habitats, and identify potential alternative practices that would increase the level of protection. Concurrently, the Study will assess the effectiveness of regulations, guidelines, design standards and enforcement that potentially affect salmonid recovery and recommend options for streamlining and modifying regulations to best protect and enhance salmonid resources.

After all the data has been compiled and reviewed, recommended options for recovery will be developed and approved by Tri-County participants. The final work product will summarize the information compiled by the Study into a document that provides an assessment of measures for habitat restoration, habitat protection, regulations, enforcement, operations and maintenance practices, and monitoring methods that could be implemented as part of a recovery plan and potential 4(d) rule. See Chapter 5 Appendix 5.4 for Urban Issues Study Scope of Work.

Northern Outfall/Marine HCP Studies

Study Concept

The goal of both the marine portion of the wastewater HCP and the proposed northern treatment plant outfall siting studies are to ensure that existing and proposed wastewater operations in Puget Sound have minimal impact on biological and human resources of Puget Sound, with an emphasis on listed species. The approach to achieving that goal is outlined below.

Basics Building Blocks/Layers of Information

Physics: Where is the water going? Measurements of temperature, salinity, currents

Chemistry: What is in the water, sediments, plants and animals? Measurements of nutrients, metals and organics in the water, sediments and organisms.

Table 4

	Objectives	Schedule	Budget
Juvenile Chinook Production Evaluation in Bear Cr. & Cedar R.	The purpose is to quantify and characterize the populations of juvenile chinook salmon produced from natural spawners in the two primary spawning tributaries within the lake Washington watershed: Bear Creek and the Cedar River.	Cedar R. Jan.- Jul. 99 Bear Ck. Feb. – Jun. 99 (*Wa. Dept. of Fish & Wildlife)*	$148,152
Life History and Ecology of Juvenile Chinook Salmon in Lk. Wa.	Determine distribution, relative abundance, residence time, patterns of food consumption, prey species, for juvenile chinook salmon in Lake Wa. based on habitat type.	Intensive: Feb. - mid Jul. Limited: Jul. - Feb. 99-01 (2 years) (*Wa. Dept. of Fish & Wildlife)*	$382,547 (per year)
Diel Habitat Selection of Juvenile Chinook Salmon in the Cedar River	Measure diel habitat use, identify main- and off-channel rearing areas, and determine temporal changes in habitat use of juvenile chinook.	Jan. - Jun. 99 *(U.S. Fish & Wildlife)*	$33,533
Juvenile Salmon Rearing and Outmigration in the Lake Union System	Document residence time and survival of sockeye (surrogate for chinook salmon), in Lake Union and assess alternative water management flow regimes and habitat restoration projects.	Apr. - Jul 00-01 *(Army Corps of Engineers-216)*	$256,050 (per year)
Predator Study in the Ship Canal	Determine number of smallmout bass and other predators and assess their diet.	Apr. - Jul. 00-01 *(U.S.* *Fish & Wildlife)*	$53,900 (per year)
Juvenile Salmonid Habitat Use of Shilshole Bay	Determine distribution and abundance of juvenile chinook salmon through nearshore esturay habitat below the Locks.	Apr. - Jul. 99-00 *(U. Wa. -216)*	$70,000 (1st year)
Adult Salmon Movement in Lake Wa. Watershed	Determine the number, timing, and distribution of adult chinook salmon in the Lake Wa. watershed	Jul. - Oct. 98-99 (*Wa. Dept. of Fish & Wildlife)*	$174,000 (per year)

Biology: Where are the plants, animals and their critical habitats? Identify the populations of plants and animals in the study areas and what is their response to changes in Puget Sound made as a result of wastewater operations and construction.

Risk Assessment Process: Integration of Physics, Chemistry and Biology.

King County Studies to Address Factors of Decline in the Cedar River-Lake Washington Watershed

In participation with the United States Fish and Wildlife Service, the Washington Department of Fish and Wildlife,and the United Stated Army Corps of Engineers, King County is conducting a series of studies in the Cedar/ Sammamish WRIA 8 to determine abundance and distribution of populations of chinook and factors for decline. Table 4 summarizes the objectives and schedules for those studies.

Cedar/Sammamish WRIA 8 and Green/Duwamish WRIA 9 Research Contracts

King County's salmon recovery research efforts are augmented by four contracts totaling $450,000. This work will help fill information gaps and lay a solid technical foundation in those WRIA efforts for which King County has lead or support responsibility (WRIAs 7, 8, 9, and 10). These contracts are summarized briefly below:

- A $100,000 contract with R2 (with CH2Mhill, Shapiro, Historical Research Associates and Pacific Groundwater Group) to assist with the development of an inventory of Puget Sound chinook salmon and salmon habitat in the WRIAs, and an assessment of the condition of existing salmon habitat. (This work is being closely coordinated with that of the tribes and the state, to build upon, and avoid duplication of, existing data and research efforts).
- A $50,000 contract with R2 (with the same subcontractors identified above) to assist the County in the review and assessment of external, ESA-related technical documents that are relevant and important to WRIA-based salmon conservation and recovery planning, e.g., the Cedar River Habitat Conservation Plan (HCP). Other documents to be reviewed may include new forest management practices, and changes to the state salmon recovery strategy.
- A $30,000 contract with Martin Environmental to help develop and articulate the ecosystem-based framework upon which the WRIA planning efforts will be built.
- A $105,000 contract to develop an analytic model for comparatively assessing the factors of salmon decline in the WRIAs, and for evaluating the relative cost-effectiveness of management alternatives. (A contractor for this task has not yet been chosen.)
- A $165,000 contract with Foster Wheeler to undertake the following tasks: $75,000 in Geographic Information System (GIS) support; $36,000 to support a water quality assessment that will

help guide salmon recovery efforts in the WRIAs; and $54,000 to support instream flow analysis as it relates to salmon recovery and conservation in the WRIAs.

Early Action Matrix

The following matrix includes other early actions that are proposed to address salmon and habitat needs.

Early Actions Related to Habitat and Stewardship

Category	Program/Action Name	Description	Short-Term Action Needed	Funding Status
HABITAT ACQUISITION AND RESTORATION				
Habitat Projects: WRIA 7	Middle Fork Snoqualmie Waterways 2000 Acquisitions	The Mid Fork Snoqualmie Waterways 2000 Basin Team will identify habitat acquisition using the enhanced Waterways 2000 ESA early action project criteria, to complete the Middle Fork Snoqualmie Waterways 2000 project, identified in the Waterways 2000 program.	Purchase of Key Parcels in 1999.	F
Habitat Projects: WRIA 7	Snoqualmie Floodplain	Acquire high quality off-channel habitat in floodplain.	Purchase of key parcels	F
Habitat Projects: WRIA 7	Snoqualmie Off-Channel	Reconnect off-channel habitat with the main channel	Construction of CIP in 1999.	F
Habitat Projects: WRIA 8	Rock Creek Enhancement	Correct bank erosion problems on stream with high habitat value.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 8	Taylor Creek habitat enhancement and flood reduction	Fisheries habitat enhancement on tributary to Cedar River. Move Taylor Creek from roadside ditch to natural stream channel. Re-construct habitat.	Construction of CIP in 2000.	F
Habitat Projects: WRIA 8	Harris Creek Culvert Replacement	Located along Stossel Creek Way, off Kelly Road. Removal and replacement of up to eight culverts and habitat restoration, in coordination with State F&W.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 8	Carey Creek Fish Passage	Restoration on high quality tributary of Issaquah Creek.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 8	Tiger Mountain Road	Restoration on high quality tributary of Issaquah Creek.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 8	Issaquah-Fall City Road	Restoration on high quality tributary of Issaquah Creek.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 8	Rock Creek culverts	Extension of existing roads habitat improvement project to protect streambank--provide larger culvert	Construction of CIP in 1999.	F
Habitat Projects: WRIA 8	Cedar River Habitat Acquisition	The Cedar River Council will review it's priority habitat acquisition list process to and identify critical salmon habitat meeting the enhanced Waterways 2000 ESA early action project criteria for the Cedar River main stem Belmondo and Dorre Don reaches, Wetland 69/Landsburg Oxbow, Rock Creek, Cedar Mountain Bridge, Wetland 79, or Lower Peterson Creek or other critical priority habitat.	Purchase of Key Parcels in 1999.	F
Habitat Projects: WRIA 8	Floodplain Buyouts	The county has matched more than $1 million from FEMA in the past two years to buy out and remove frequently flooded homes and other structures in the floodplain of the Cedar River. The county has restored riparian areas to improve fish habitat.	Purchase of Key Parcels in 1999.	F
Habitat Projects: WRIA 8	Passage Improvements for Juvenile Salmonids at Ballard Locks	Local governments in the WRIA and the Muckleshoot Indian Tribe are sponsoring a set of improvements at the Ballard Locks that the Corps of Engineers will begin constructing in November 1999. The improvements are projected to improve the survival of salmon smolts leaving the Lake Washington system by 20% by providing safe passage than the smolts now experience frequently as they are pulled into the filling system for the Locks	Construction of CIP in 1999.	F
Habitat Projects: WRIA 8	Madsen Creek restoration project	Stream restoration and sewer pipe stabilization project designed to enhance habitat value for salmonids and minimize impacts from construction (e.g. use of helicopters and hand tools rather than new access road and heavy equipment.)	Construction of CIP in 1999.	F

Early Actions Related to Habitat and Stewardship

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
Habitat Projects: WRIA 8	Madsen Creek tighten and main stem channel improvement	Restore surface water flows to stream to pre-development levels to control erosion that degrades habitat values in main stem.	Construction of CIP	F
Habitat Projects: WRIA 8	Issaquah Creek Waterways 2000 Acquisitions	The Issaquah Creek Waterways 2000 Basin Team will identify critical salmon habitat meeting the enhanced Waterways 2000 ESA early action project criteria, within the Carey Creek reach.	Purchase of Key Parcels in 1999.	F
Habitat Projects: WRIA 8	Sammamish River habitat restoration project	Project will be designed to provide improved salmon habitat in Sammamish River. The project would deepen the major pool in this part of the river, and will draw cooler groundwater to provide a much more favorable holding environment.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 9	Dumas Bay Eelgrass Restoration	Enhance and reestablish eelgrass beds to create and expand scarce estuarine habitat.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 9	Middle Green River Acquisitions	The Middle Green Basin Waterways 2000 Team will identify critical salmon habitat meeting the enhanced Waterways 2000 ESA early action project criteria, within the Middle Green Basin Waterways 2000 reach.	Purchase of Key Parcels in 1999.	F
Habitat Projects: WRIA 9	Lower Newaukum Creek	Located at 212th Way SE, approximately 300 feet south of 368th Street. Use of large woody debris or boulders to reduce the large amount of sediment within the stream's channel.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 9	O'Grady Park-Habitat Restoration	Placement of large woody debris in 3600 lineal feet of stream. Designed to increase cover for juvenile and adult salmonids and improve instream habitat conditions. Restore 1200' of stream channel within O'Grady Park. Restore access to 1.3 miles of habitat by constructing log and rock fishway. Place LWD throughout stream and replant riparian buffer.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 9	Elliott Bay/Duwamish habitat restoration program	Ongoing program to prioritize and implement sediment remediation and habitat restoration projects in the bay and river. Currently underway: Norfolk sediment remediation project and West Seattle habitat restoration project.	Construction of CIP	F
Habitat Projects: WRIA 9	Duwamish-Hamm Creek Restoration Project	Restoration of approx. 7 acres of stream and intertidal wetland habitat, replacing existing piped and channeled section with meandering channel revegetated with native trees and shrubs.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 9	Des Moines Creek Improvement Plan	Series of improvements including construction of regional stormwater retention/detention facility, low flow augmentation, and stream habitat enhancements for restoration of natural stream qualities and fish habitat.	Construction of CIP	F
Habitat Projects: WRIA 9	O'Grady Culvert Improvement	Removal of a fish migration barrier in tributary to Green River. Identified as high priority for replacement under Waterways 2000 site management plan. This stream is known habitat for chinook, coho, steelhead and resident trout.	Construction of CIP in 1999.	F
Habitat Projects: WRIA 9	Mill Creek Restoration (Green River Valley)	Wetland acquisition project will improve hydrograph, water quality and habitat values in Mill Creek watershed. Wetland and stream restoration, including construction of two-stage channel with a meandering low flow channel and wider flood overflow channel within riparian wetland complex, addition of large woody debris and other enhancements.	Construction of CIP in 1999.	F
Habitat Projects: Multiple WRIAs	ESA Project Mitigation	General purpose mitigation fund for habitat impacts.	Construction of CIP in 1999.	F
Habitat Projects: Multiple WRIAs	Fish Passage Impediment Removal	Fund to remedy passage barriers.	Construction of CIP in 1999.	F

Funding: F = Funded N = Not Funded

Early Action Matrix

Early Actions Related to Habitat and Stewardship

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
Habitat Projects: Multiple WRIAs	Contingency Matching Grant Fund	To provide matching funds for other sources for use with a wide variety of restoration projects.	Construction of CIP in 1999.	F
Habitat Projects: Multiple WRIAs	Drainage and habitat improvement program	Addresses localized erosion, flooding and small habitat problems in natural stream system, using bioengineering technology for streambank stabilization, removing fish barriers and installing large woody debris and boulders in streams to enhance habitat.	Construction of CIP in 1999.	F
RESEARCH AND STUDIES				
Research: WRIA 7	Habitat Assessment along the main-stem Snoqualmie River	Assessment of habitat conditions along the mainstem Snoqualmie from Snoqualmie Falls to the King/Snohomish County Line. King County has funded and is hiring a Senior Ecologist and Ecological Technician to initiate this field assessment. This work will be coordinated with an update of the King County Flood Hazard Reduction Plan.	Conduct study.	F
Research: WRIA 7	Sediment Deposition	Coordinate King County's ongoing efforts to monitor sediment deposition and/or erosion with more detailed studies of the impacts of scour on chinook redds being proposed by the Technical Committee	Conduct study.	F
Research: WRIA 7	Smolt Trapping	Trap salmon smolt to evaluate juvenile production and survival.	Fund and conduct study.	N
Research: WRIA 7	Enumeration of Juvenile Outmigraion	Obtain estimates of juvenile production in the basin	Fund and conduct study.	N
Research: WRIA 7	Snoqualmie Habitat Inventory	Identify the most promising floodplain areas for protection and restoration in the Snoqualmie Basin.	Fund and conduct study.	N
Research: WRIA 7	Fine Sediment Intrusion/Scour Study	Monitor scour and fine sediment intrusion to test for influence on egg to fry survival	Fund and conduct study.	N
Research: WRIA 7	Snoqualmie Levee Setback	Study the feasibility and design options for a levee setback or removal on the lower Tolt River	Fund and conduct study.	N
Research: WRIA 8	Ecosystem Restoration Studies	The US Army Corps of Engineers is partnering with King County, Seattle, Bellevue, Issaquah and others in WRIA 8 to study potential habitat improvements in the Ship Canal and Cedar and Sammamish Rivers, beach spawning opportunities in Lake Washington and Sammamish, and the potential effects on spawning behavior caused by the annual lowering Lake Washington for flood control in the fall.	Conduct study.	F
Research: WRIA 8	Lake Washington Ecological Studies	Studies on fish mortality at the Ballard Locks, the planktonic food supply of Lake Washington, and an array of potential predators of the sockeye. Though these studies have focused on sockeye they have resulted in increased understanding of other species, including a greater appreciation of the lakeshore environment for juvenile Chinook.	Complete and publish studies in early 2000.	F
Research: WRIA 8	Lake Washington chinook studies	In cooperation with Corps of Engineers, State resource agencies and UW, conducting studies to provide better information on status of chinook populations and habitat in the Cedar/Lake Washington basin.	Conduct study in 1998-2000.	F
Research: WRIA 9	Water Quality Assessment--Green River	Develop a water quality model of the Green River and its tributaries to assess the risk to aquatic life, wildlife, and people under existing conditions, various growth assumptions, and pollution abatement strategies.	Conduct study.	N

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Early Action Matrix

Early Actions Related to Habitat and Stewardship

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
PUBLIC OUTREACH AND STEWARDSHIP				
Public Outreach and Stewardship	Water Quality Advertising Campaign	A multi-jurisdictional ad campaign to educate the general public about their connection to water quality and encourage personal behavior changes that will improve water quality (e.g. fix oil leaks, scoop pet waste, reduce use of fertilizers/ pesticides). Uses high-profile TV, radio, and print ads to reach over a million citizens.	Ongoing.	F
Public Outreach and Stewardship	Natural Lawn Campaign	A multi-jurisdictional advertising and public outreach campaign to educate the general public about the impact typical lawn care has on water quality and water supplies and encourage personal behavior changes that will improve water quality and conserve water (e.g. use mulching mower, water lawns only once per week, reduce use of chemicals or use organic fertilizers). Uses high-profile TV, radio, and print ads, media events, and local community events.	Ongoing.	F
Public Outreach and Stewardship	School education programs	Educators visit classrooms to teach K-12 students about their personal connection to water quality, household hazardous waste, and resource conservation. Information is provided about personal behavior changes students and their families can take to help protect water quality and conserve water and other resources.	Ongoing.	F
Public Outreach and Stewardship	Educational workshops, tours, etc.	Workshops, field trips, tours and other opportunities are provided for citizens to learn about their connection to water resources and ways they can help protect water quality and salmon in a hands-on setting. One example is the Cedar River Salmon Journey, in which citizens visit sites along the Cedar River to watch spawning salmon and hear presentations from volunteer naturalists on salmon ecology and how they can help protect salmon.	Ongoing.	F
Public Outreach and Stewardship	Newsletters, brochures, and publications	Newsletters with educational information about peoples' connection to water resources and how they can help protect water quality and salmon are distributed to targeted audiences. Newsletters include Downstream News (volunteer programs and water quality), County Tracks (Parks interpretive programs/ wildlife information), Farm and Forest (water quality best management practices for agricultural and forest lands). Brochures, fact sheets, and other publications provide focused educational messages about water resources and personal behavior changes people can make to help protect salmon. Brochures include reprints of "Living with Salmon in King County" and "Home Tips for Clean Streams."	Ongoing.	F
Public Outreach and Stewardship	Riparian planting events	Volunteers participate in hands-on activities to replant native vegetation in degraded riparian, wetland, estuarine or other critical habitat areas. Volunteers learn about the importance of riparian areas, native vegetation, and other habitat features. Nearly 15,000 plants were planted by over 1,500 volunteers in 1998.	Ongoing.	F
Public Outreach and Stewardship	Native plant salvage program	Volunteers salvage native trees and shrubs from construction sites and maintain salvaged vegetation until it is replanted in salmon habitat restoration projects. Volunteers learn the importance of native vegetation to riparian areas.	Ongoing.	F
Public Outreach and Stewardship	Habitat Partners Program	Volunteers maintain new salmon habitat restoration sites. Activities include weeding, watering, replanting, monitoring, and other enhancement activities.	Ongoing.	F

Early Actions Related to Habitat and Stewardship

Category	Program/Action Name	Description	Short-Term Action Needed	Funding Status
Public Outreach and Stewardship	Volunteer monitoring programs	Volunteers monitor numerous water resource parameters, including spawning salmon, water quality, etc. Data is collected according to specific protocols and is used in various watershed management programs.	Ongoing.	F
Public Outreach and Stewardship	Watershed Action Grant program	Grant recipients carry out projects to educate and involve the community on water resource issues or directly improve water resources or salmon habitat. Grants are available for community groups, schools, businesses, and agencies.	Ongoing.	F
Public Outreach and Stewardship	WaterWorks Fund	Funds community projects that protect or improve watersheds, streams, rivers, lakes, wetlands and tidewater. The projects must protect or improve water quality, foster community stewardship, develop long-term partnerships, leverage resources, and have the assurance of a long-tern legacy. Grants are available for schools, agencies, community groups, tribes, and special districts.	Ongoing.	F
Public Outreach and Stewardship	Salmon/ ESA Speakers' Bureau	Trained staff and volunteer speakers present information about salmon, the Endangered Species Act, and how people can help protect salmon. Targeted audiences include business organizations, service clubs, community groups, schools, etc.	Began in Oct. 1998. First external training scheduled for March 1999.	F
Public Outreach and Stewardship	Public workshops/ meetings about the ESA	Public events designed specifically to inform people about salmon and the Endangered Species Act response efforts and collect public input for salmon conservation planning efforts.	First series of workshops Jan-Feb 1999. Workshops and other events will continue throughout 1999.	F
Public Outreach and Stewardship	Salmon Information Center clearinghouse	A collaborative project to provide a convenient central toll-free phone number and website where citizens can get answers to questions about salmon and the ESA and find out how to get involved. The Salmon Information Center will be promoted in all salmon-related communications (advertising, newsletters, brochures, etc.) by Tri-county and other partners. Partners include King County, the Tri-county ESA response effort, Seattle, the State of Washington, and others.	Began in Oct. 1998. Full implementation should come on-line in March 1999.	F
Public Outreach and Stewardship	Salmon Information Television	A collaborative project to produce and distribute educational programming about salmon and the ESA response efforts via a network of over a dozen local municipal and educational cable channels. Programming will include short educational Public Service Announcements as well as longer studio shows. Partners include King County, Seattle, Bellevue, the University of Washington, and the Tri-county ESA response effort.	First Public Service Announcement (PSA) distributed in Jan 1999. Production will continue through 1999.	N
Public Outreach and Stewardship	Salmon advertising campaign	A collaborative project to raise awareness about the salmon crisis and local ESA response efforts, using advertising on major broadcast TV, radio and print media. Partners include King County, Elgin DDB, and the Tri-county ESA response effort.	First PSA scheduled for broadcast in March 1999.	N
Public Outreach and Stewardship	Salmon educational materials	Fact sheets, brochures, newsletters, and other educational materials designed specifically to inform citizens and stakeholders about salmon, the ESA, and ESA response efforts. Includes materials targeted toward students like "The Fish Who Could Climb Mountains" (an insert in the Seattle's Child family of newspapers) as well as more technical fact sheets designed for use at workshops and other events.	First fact sheets developed in 1998. "Fish who could Climb Mountains" published Jan 1999. Other publications scheduled for development throughout 1999.	F

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Early Actions Related to Habitat and Stewardship

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
Public Outreach and Stewardship	Grassroots outreach	Work with existing community-based organizations to foster increased public participation in salmon recovery planning and implementation. Partnership with Livable Communities Coalition.	Implementation beginning early 1999.	F
Public Outreach and Stewardship	Coastal Canvass program	Target local communities along Puget Sound shoreline to recruit, train, and organize volunteers for beach monitoring and enhancement. Partnership with Adopt-a-Beach.	Implementation beginning early 1999.	F
Public Outreach and Stewardship	PBRS promotion	Educate community members in targeted river basins about the Public Benefit Rating System, a tax incentive program for salmon habitat protection and enhancement. Partnership with WETNET.	Implementation beginning early 1999.	F

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Early Actions Related to New Development

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
ALL REGULATIONS AND PROGRAMS RELATED TO NEW DEVELOPMENT				
Enforcement	One internal phone number to report water-related complaints	A central phone number for complaints will enable monitoring of types of complaints and responses related to ESA. It will reduce the number of complaints that get misdirected in the current diffuse system in diverse departments. This should increase com	Redevelop and expand prior trouble call network by June 1999.	F
Enforcement	Increased Consistency of Inspection and Enforcement at DDES	a.) Conduct intra-department field trainings with different inspectors (residential, land-use, clearing and grading, erosion control, etc.) including industry site supervisors on erosion control and sensitive areas protection to increase consistency of co	Release of staff from permit review and inspection responsibilities for training.	Training within existing budgets. Possible funding implications for inspectors' equipment needs.
Inspection	Increased Consistency of Inspection and Enforcement at DDES	a.) Conduct intra-department field trainings with different inspectors (residential, land-use, clearing and grading, erosion control, etc.) including industry site supervisors on erosion control and sensitive areas protection to increase consistency of co	Release of staff from permit review and inspection responsibilities for training.	Training within existing budgets. Possible funding implications for inspectors' equipment needs.
Monitoring	Enhanced Monitoring of Mitigation Sites	Increase monitoring of mitigation sites with the addition of 1 Ecologist to a staff of 6 (SAA) to inspect for proper installation and function of mitigation sites. Bond forfeitures will occur when necessary to complete mitigation as required by permit application	Complete staffing of program (in process). Training of staff in database management. Development of procedures for complaint management. Development of reporting procedures.	F
Education/Staff Training	County-wide cross-training for water-related code compliance staff in all agency's (see below)	TOP s training will educate all code compliance inspectors in the county to each others' top five compliance targets and whom to call if a potential violation is seen in the field. This increase in "eyes in the field" should increase compliance for activities	Release of inspection staff for cross-training by August, 1999.	Training within existing budgets. Funds needed for follow-up to reported violations.

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Early Action Matrix

Early Actions Related to New Development

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
SENSITIVE AREAS ORDINANCE (SAO)				
Enforcement	Enhanced Enforcement of and Compliance to SAO and Clearing and Grading Codes	Add and train staff whose primary responsibility will be to respond to complaints of clearing and grading violations in sensitive areas (particularly near salmonid-bearing streams and wetlands).	Add 3 Site Development Specialists to an existing staff of 11 (approved; hiring in 1999). Train all staff in database management. Develop procedures for complaint management and reporting.	F
Enforcement	Fines for SAO Violations	Disallow reduction in fines for SAO violations.	Change policies on fines for violations.	F
Enforcement	Committee review of SAO Variance	Add a committee review of SAO variance requests modeled after SWDM adjustment process to ensure consistency of decisions and insulate individual staff from applicant pressure.	Form staff committee for review of variance requests.	F
Enforcement	Scientific Advisor	Add a science advisor position for the development review process to add consistency to implementation and help provide defensible basis for conditions.	To be proposed in 2000 budget.	N
Code/Policy Changes	SAO Buffers	Develop guidelines for expansion of buffers allowed under SAO. The guidelines are needed to ensure application and the consistency of use.	Staff development of guidelines.	N
Code/Policy Changes	SAO BMPs	Develop BMPs for ditch cleaning and other maintenance needs that meet SAO and other identified needs of listed species.	Staff development of BMPs.	N
Code/Policy Changes	Assessment Policies for Sensitive Areas	Develop clear valuation guidelines for restricted properties and reassess parcels accordingly to provide incentives for allowing rehabilitation of these lands to increase functions.	Staff development of assessment guidelines; support council review and adoption if needed.	N
Code/Policy Changes	Fertilizers and Pesticides	Develop policies and programs to limit commercial applications of fertilizers and pesticides for lawncare and landscaping in areas draining to sensitive areas.	Develop proposals for regulations and incentives to limit use of fertilizers and pesticides in sensitive areas.	N
Code/Policy Changes	Sensitive Areas in New Cities	Ensure that annexation agreements for new cities incorporate requirements for protection of sensitive areas that are equivalent to King County policies and regulations.	Staff review of annexation agreements consistent with KC policies.	N
Code/Policy Changes	Functional Assessment of Wetlands	Adopt WDOE wetland functional assessment methodit as the standard method for evaluating wetland functions.	Evaluate and move WDOE wetland assessment method for adoption.	N
Code/Policy Changes	Stream restoration and buffer guidelines.	Develop guidelines for the restoration of disturbed streams and stream buffers. Clear criteria and performance standards are needed to provide consistency in mitigation plans.	Staff development of criteria and performance standards.	N
Code/Policy Changes	Mitigation Requirements	Expand the current mitigation requirements to include restoration of degraded buffer and riparian habitat as mitigation to direct effects of adjacent upland development.	Develop proposals for mitigation requirements.	N

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Early Actions Related to New Development

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
Education/Public Outreach/Staff Training	Staff Training	Provide additional training to all appropriate review staff to ensure that they know the specific code provisions, allowances and prohibitions to improve final project compliance with the regulations.	Develop training program.	N
Education/Public Outreach/Staff Training	Education for Property Owners	Develop educational program to develop and distribute information to all property owners that abut water features to notify them of their role in salmon protection and the upcoming changes which may directly affect them and voluntary actions they could do that would help salmon.	Staff development of educational program.	F
Funding	Agricultural Ditch Restoration	Develop funding sources for agricultural ditch revegetation and in-stream structure. Without subsidies, farmers cannot afford the cost to revegetate existing agricultural ditches. In certain watersheds, these ditches represent a large percentage of available habitat for salmonids. In their current conditions they provide little habitat value and high predation rates.	Develop funding sources and programs.	N
Monitoring	Mitigation Project Tracking Guidelines	Develop a clear process to track mitigation projects, their success and ensure that contingency actions are taken if mitigation fails or is not completed.	Develop tracking process.	F
Monitoring	Site Visitation for All Projects	Require that site visits by a Sensitive Areas Tech for ALL projects are part of the permit process. That way, most potential sensitive area conflicts will be found and unintended impacts will be further avoided.	Assign staff to site visits.	N
Monitoring	SAO Compliance and Mitigation Inspection Program	Establish a sensitive areas compliance and mitigation success inspection program. The need for consistent and technically specialized inspections at the pre-construction, clearing, post-construction and mitigation performance deadline stages are needed to improve compliance and results.	Develop an Inspection Program for Sensitive Areas Compliance	N
Monitoring	Performance Standards for Evaluating Mitigation Project Success	Develop reference standards and performance standards for designing and evaluating the success of stream and buffer mitigation projects.	Develop Performance Standards	N

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Early Action Matrix

Early Actions Related to New Development

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
CLEARING AND GRADING				
Details on the Clearing and Grading Ordinances and their relation to Salmon and Habitat recovery in are included in the appendix following this chapter.				
Code/Policy Changes	Site Alterations Ordinance Revisions.	Complete and adopt new Site Alterations Ordinance including clearing and grading changes.	Develop recommendations for changing the Site Alterations Ordinance.	N
Enforcement	Enhanced Enforcement of and Compliance to the Clearing and Grading Codes	Staff primary responsibility will be to respond to complaints of clearing and grading violations in sensitive areas (particularly near salmonid-bearing streams and wetlands).	Add 3 Site Development Specialists to an existing staff of 11 (in process). Training of staff in database management. Development of procedures for complaint management and reporting.	F
Enforcement	Enhanced Inspection of Erosion and Sedimentation Controls During Development	Increase number and database training of staff. The increased field presence will reduce the chance of sediment from development reaching salmonid-bearing streams and wetlands.	Add 3 Engineers to an existing staff of 1 to increase inspections of erosion and sedimentation controls during development (in process). Training of staff in database management. Development of procedures for complaint management. Development of reporting procedures.	F
SURFACE WATER DESIGN MANUAL				
Education	Moss Control and Fungicide Use	Reduce the use of fungicides in lawn care through a Public Education Campaign. Identify alternatives for roof moss control that are less toxic.	Education about application of lawn care and moss control products. Development and use of disease-resistant grasses.	N
Research	Water Quality Study--Temperature and Dissolved Oxygen	The UW Center for Urban Water Resources is currently conducting a region-wide study which should yield important information and potential recommendations to be considered regarding the water quality components of dissolved oxygen and temperature.	Underway.	F
Enforcement	Enforcement of SWDM	Improved enforcement of these regulations highly recommended. Recommendations for improving enforcement are contained in the section of this table titled "All New Development.."		F

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Early Actions Related to New Development

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
SHORELINE MASTER PROGRAM				
Details on the goals of the Shoreline Master Program and their relation to Salmon and Habitat recovery in King County are included in the appendix following this chapter.				
Code/Policy Changes	Dock, Bulkhead, and Bank Stabilization Permitting	When permitting rebuilding of docks, bulkheads and bank stabilization, require that they are brought up to current guidelines for allowable structures. This includes limitations on pilings and piling materials, 50% transparency in decking and "soft" biostabilization methods. Develop the guidelines to ensure that they are consistently applied.	Develop guidelines to ensure consistency in permitting.	N
Code/Policy Changes	Update the SMP	Develop a schedule to update the County's SMP. Tasks to include are to close existing loopholes and inconsistencies with more recent codes, ensure that development regulations fully implement plan while addressing all known needs of listed species, provide clear authority to require mitigation of all impacts and update the plan with recent changes proposed to the state guidelines and any salmon legislation passed this year.	Staff development of schedule to update the County's SMP.	N
Code/Policy Changes	Coordination of SMP and SAO	Improve coordination of SMP and SAO. Ensure that the review process is coordinated and each review group is notified of permit applications for the other. Require sensitive area staff review of any exemption in areas with ESA-listed species. Automatically route all exemption applications to sensitive areas to identify the need for any other permits. Add conditions on exemptions that the exemption is not valid without all other necessary permits obtained and on-site prior to work. This will help reduce reliance on HPA conditions to protect resources since the SAO is usually more restrictive than the Hydraulic Code.	Revise Exemption Conditions to require Sensitive Areas Staff Review for certain permit applications in order to coordinate SMP and SAO.	N
TRANSFER OF DEVELOPMENT RIGHTS				
Code/Policy Changes	Establish Transfer of Development Credits Program	Habitat May be Preserved	Accomplished.	F
Code/Policy Changes	TDR Marketing Outreach	Outreach to facilitate transfer of density credits from rural areas to urban areas. Work involves meeting with City staff from Seattle and the 39 suburban cities, general public, land owners, neighborhood associations, community councils, civic organizations, and developers to inform and educate on the public benefits and values achieved by this innovative tool in the toolbox of land preservation.	Program ongoing; anticipate purchase of density credits from estimated 300-400 acres by year end 2000.	F
Funding	Establish Pilot TDR Program with Bank and Amenities	$1.5 million Bank established in 1999 Budget to purchase density credits from rural areas with a goal to move them to already developed urban areas. $500,000 set aside for amenities package for capital improvements to be constructed in urban neighborhoods that agree to accept additional housing density from the rural areas. Amenities include sidewalks, acquisition of pocket parks, transit improvements, pedestrian and bicycle improvements, public art, etc. Density transfers to receiving sites will be subject to all local land use regulations, SEPA, SAO requirements, etc. Habitat may be preserved.	Adoption of TDR Bank Implementing Ordinance submitted to Council March, 1999. Funds to be expended in 1999.	F

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Early Action Matrix

Early Actions Related to County Services

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
ROAD SERVICES				
Detailed Best Management Practices Manual attached in an appendix following this chapter.				
Maintenance	Best Management Practices (BMP's)	To reduce the adverse impacts of road maintenance operations on fish habitat, BMPs provide for enhanced erosion/sediment control during daily operations as well as habitat improvements on a site-specific basis. Staff is evaluating revisions to current draft to address impact on salmon.	King County Council approval and adoption of fully funded BMP program.	F
Maintenance	Regional Vactor Waste Disposal Program	Develop and implement plan to provide a network of vactor waste receiving stations in order to promote the appropriate disposal of this waste. Vactor waste is a combination of liquid and sediment removed from drainage facilities and is treated prior to disposal.	In progress.	F
Maintenance	Mitigation Projects Identification Project	Identify potential improvements to salmon habitat such as fish passage impediment removal and habitat reclamation. Some approved projects would be performed as a part of general maintenance activities, others would be included as CIP or mitigation projects.	In progress.	F
Maintenance	Drainage Project Prioritization Program	Conduct prioritization to determine the order in which the backlog of drainage projects will be constructed. Fish Passage Improvement and Fish Habitat Improvement have recently been added to the criteria for prioritization. Water Quality Improvement and Wetland Enhancement are also criteria used for selection.	In progress.	F
Maintenance	NPDES Geographic Information System (GIS) Mapping Program	Map out drainage system countywide to enable tracking and identification of point and non-point pollution sources. Mapping is crucial to determining "migratory extents" of salmon. Federally mandated (NPDES).	In progress.	F
Maintenance	Coordinated Reduction of Waste (CROW)	Require waste materials to be separated and stockpiled at temporary storage facilities. Drainage from the facilities is collected and treated to minimize impacts to groundwater. As waste materials accumulate, they are hauled to appropriate recycling or disposal sites.	In progress.	F
Maintenance	Underground Storage Tank Removal Program	Bring KCDOT Road Maintenance underground fuel tanks into compliance with Department of Ecology requirements. Upgraded stations lower risk of groundwater contamination by fuel and also reduce exposure of stormwater to fuel dispensing areas.	10 sites will be in compliance December 1998 with additional upgrades occurring in 1999.	F
Maintenance	Timber Management Plan	Develop a timber management plan for Road Maintenance sites.	In progress.	F
Maintenance	Grading Permit Application Development for Programmatic Road Maintenance Activities	Evaluate enabling Road Maintenance activities to occur on a area-wide, specific activity permit in accordance with adopted Sensitive Areas Ordinance (SAO) which is regulated by King County Department of Development and Environmental Services.	Presently in feasibility and planning stages.	F
Maintenance	Pitsite Compliance Program	Develop applications for grading, clearing, stockpiling, mining and filling permits. Typical requirements for these permits are Erosion and Sediment Control (ESC) plans, improvement and installation of drainage facilities, and replanting (habitat restoration).	In progress.	F

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Early Actions Related to County Services

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
Maintenance	Storm Water Pollution Prevention Practices (SWPPP's)	Prepare plan in accordance with federal stormwater regulations (National Pollutant Discharge Elimination System - Industrial Permits). The plan contains BMP's for limiting the potential for pollution of storm water. Implementation of the plans has reduced the amount of stormwater runoff exposed to potential pollution sources and improved sediment control.	In progress.	F
Maintenance	Stormwater and Groundwater Monitoring Plan, King County Roads Division Operations & Maintenance and Sand & Gravel Facilities	Monitor sites where SWPPP's are implemented. Water quality is monitored quarterly at stormwater discharge points and groundwater wells.	In progress.	F
Maintenance	King County Stormwater Management Program 1996-2000	Implement comprehensive approach to managing surface water. It provides details on current stormwater management practices and identifies implementation of improved practices which are still being developed. Partially fulfills NPDES requirements for Municipal Stormwater General Permit.	In progress.	F
Maintenance	Water Quality Monitoring Program	Implement a ditch sampling program to gather data on water quality concerns associated with ditches in addition to sampling and monitoring plans associated with SWPPP's, the Regional Vactor Waste Disposal Program and the Underground Storage Tank Removal Program.	In progress.	F
Maintenance	King County Road Standards	Provide standards for road widths, types, geometry and construction. There are also standards for ditch geometry, drainage design and other roadside features (i.e. light posts, retaining walls).	In progress.	F
Maintenance	Rebuilding Bioswales	Rebuild existing bioswales to improved standards	In progress.	F
Maintenance	Maintaining Bioswales	Improve the performance of bioswales by increased mowing frequency through a reduction in SWM fees for homeowners who will provide the mowing.	In progress.	F
Policies	ESA Compliance	Assure compliance of Division programs and projects with the requirements of the ESA and to assist in providing greater protection to salmon.	In progress.	F
Policies	Roads Standards	Reviewing and updating the Road Standards including a review for impacts on salmon.	In progress.	F
Funding	ESA Compliance Costs	Included in the 1999 Division budget for ESA mitigation for capital improvement projects is funding to cover costs associated with ESA compliance over and above the costs of compliance with the Sensitive Areas Ordinance. The current 1999 budget amount is $517,000.	In progress.	F
Capital Improvements	Passage Barrier Removal	The purpose of the program is to remove fish passage barriers that are caused by roadway components such as culverts.	In progress.	F
Capital Improvements	Stream Improvements	Road Maintenance staff are evaluating current chinook spawning habitat in the Snoqualmie Valley, focusing on Tuck Creek. An interdisciplinary scientific team has been assembled to evaluate this stream and recommend habitat restoration measures. Other projects include: Harris Creek, Spring Creek, Tiger Mountain Road, Rock Creek	In progress.	F
Capital Improvements	Hydroseeder	An additional hydroseeder is being purchased to keep up with increased demand. The hydroseeder is integral to erosion and sediment control methods	In progress.	F

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Early Action Matrix

Early Actions Related to County Services

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
Capital Improvements	Prioritization of Drainage Projects	Road Maintenance staff are in the process of integrating environmental factors into the current process for prioritization of Road Maintenance drainage projects.	In progress.	F
Research	Road Crossing Inventory	Staff will evaluate all areas where salmonid habitat intersects with County roads and County rights-of-way. Four major data collection efforts are being undertaken: ESA mapping of streams, wetlands and stream crossing culverts within the road rights-of-way; habitat assessment of critical habitat factors and other factors of decline; water quality sampling; and macroinvertabrate ("bugs") study.	In progress.	F
Research	Passage Barriers	The purpose of the program is to remove fish passage barriers that are caused by roadway components such as culverts.	Two fish passage projects have been accelerated for work on Carey Creek.	F

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Early Actions Related to County Services

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
RIVER MANAGEMENT				
Code/Policy Changes	KCFHRP (King County Flook Hazard Reduction Plan) Update	The KCFHRP update will provide recommendations to ensure that bank stabilization projects, facility repairs, and other flood hazard reduction activities protect public health and safety while furthering the conservation and recovery of listed species. The update will ensure consistency with federal and state mandates for protection of the species; the strategy for the update will be developed in conjunction with the Rivers Section programmatic review by the ESA panel, and Section 7 consultations with the NMFS and the USFWS.	Develop recomendations for the KCFHRP update. (target completion date = 12/31/00)	F
Code/Policy Changes	Retooling of the PL 84-99 Program	Over the past two years, Rivers section staff have worked successfully with Corps staff to redesignate as many PL 84-99 facilities as possible as revetments, which are eligible for FEMA funding for flood damage repairs and may be freely revegetated with native trees and shrubs. We recommend that the Corps conduct a Section 7 consultation with NMFS and USFWS concerning PL 84-99 vegetation management standards. As an interim measure, vegetation management standards should be relaxed to protect critical chinook salmon habitat. In addition, PL 84-99 policies and funding priorities should be redirected toward levee reconfiguration projects that allow ample volumes of riparian and LWD installation. Funding for property acquisition (currently not covered under PL 84-99) would have to be a key component of program retooling.	Recommend revisions to the PL 84-99 Program	N
Code/Policy Changes	Revisitation of the Boater Safety Guidelines	The Boater Safety Guidelines that Rivers Section staff must follow in compliance with the 1996 King County Hearings Examiner Order restrict the extensive use of LWD in restoring salmonid habitat in King County's large rivers. It appears that the only way to gain more latitude in the use of LWD is by issuing a new SEPA determination (either an MDNS or a DS), or by lobbying the King County Council to adopt an ordinance requiring that ESA requirements for salmonid habitat restoration be considered in context of recreation uses	Initiate review and revision process.	N
Code/Policy Changes	Channel Migration Hazard Mapping and Public Rule	The River's Section has been instrumental in mapping areas along major river systems that are subject to channel erosion and destabilization, channel incision and shifts in location of channel meander. Mapping studies identifying these areas have been prepared for the upper Green River, Tolt River, Raging River and three forks of the Snoqualmie River. Development regulations are strict and limiting within the severe areas, similar to the restrictions in mapped flood-ways.	The Public Rule is expected to be transmitted to the Executive and County Council this spring for review and public hearings. Regulations adopted via the Public Rule are expected to be inte-grated into the proposed amendments to the County Sensitive Areas Regulations later this year in September.	F

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Early Actions Related to County Services

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
Maintenance	Bank Stabilization Guidelines Update	The 1993 Guidelines for Bank Stabilization Projects redirected traditional erosion protection techniques toward design approaches that incorporate fish and wildlife habitat elements. The update of this document will more closely examine the effects of various bioengineering techniques to provide designers with a greater knowledge of techniques that can be used to maximize fish and wildlife of the project design.	The update will be scoped late in 1999 with a final revision of the document completed by the end of the year 2000.	F
Maintenance	River Facility Maintenance and Repair	The River's Section will continue to have funds available to do repairs and maintenance to damaged river protection facilities. Facility repairs will be prioritized based on KCFHRP policies, as amended to reflect ESA requirements. Repairs will be designed and constructed in accordance with the contemporary, fish friendly standards outlined earlier in this report; and as may be amended through changes to the Guidelines resulting from ESA mandates.	Ongoing.	F
Research	Forest Practices and Riverine Floodplain Management	Design a work program commitment over the next two years to more actively engage the subject of forest practice effects and relationships on floodplain management and natural resource protection programs (i.e., salmon recovery). The analysis of the rural stormwater fee proposal would provide a convenient nexus to initiate a more proactive program to make forest practices and forest land owners a more integral part of the County's overall salmon recovery plans and programs. A companion work program effort in the River's Program to advance some of the technical findings from previous studies should be proposed for funding in next year's budget.	Develop work program commitment to integrate forest practices and natural resource protection programs.	N
Monitoring	River Facilities Inventory	An inventory of King County river facilities is being compiled to describe the physical condition, structural worthiness, ecological and geomorphic conditions, and maintenance and legal history of the nearly 500 flood control facilities. In addition to other program applications, the facility inventory and report will serve as an adaptive management and monitoring tool to help guide Rivers Section toward compliance with ESA species recovery goals by identifying those facilities that could be modified or removed to improve instream and riparian habitats.	For 1999, about 100 facilities will be inventoried by end of June. Target Completion Date = 12/31/00.	F
Capital Improvement Projects	Green River Watershed Acquisitions	The Green River Flood Control Zone District has received approval to utilize Specific FEMA funds initially scheduled for facility repairs, for acquisition of flood prone lands. If all offers are accepted the District could purchase close to 50 acres in the Lower Green. These sites provide supplemental flood storage and opportunities for habitat enhancement project in the future.	Acquire parcels.	F
Capital Improvement Projects	Snohomish Watershed Acquisitions	The Rivers Section has procured FEMA funds to purchase a nine-acre parcel and home on the Raging River below Preston. The parcel contains a salmon-bearing stream and wetlands, along with over 700 feet of river frontage. Purchase is scheduled for early 1999. Once purchased, the property will be managed for open space.	Acquire parcels.	F

Funding: F = Funded N = Not Funded

Early Action Matrix

Early Actions Related to County Services

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
Capital Improvement Projects	White River Acquisition	The Rivers Section has successfully obtained FEMA disaster funding to purchase flood prone areas instead of implementing repair projects in the lower White River. Sites in the serve as significant off-channel rearing and refuge. ICRID funding is also being utilized to respond to a willing seller of 72 acres along the White River adjacent to the downstream boundary of the Muckelshoot Indian Tribe Reservation.	The appraisal of this property has been completed and a purchase and sell agreement is expected to be completed in the next 2 months.	F
Capital Improvement Projects	Sammamish River Transition Zone Section 7 Consultation (Completed 11/31/99)	This project would increase channel conveyance and at the same time improve instream and habitat complexity and riparian habitat through a combination of channel modifications, LWD introduction and revegetation. The Corps role in the project is to review the hydraulic analysis (currently being prepared by staff of the WTD Engineering and Environmental Services Section, in a timely fashion so the project can be built in 1999. Rivers Section staff are hopeful that after completion of the project no further Transition Zone vegetation removal will be required.	Initiate review of project.	F
Capital Improvement Projects	Non-structural Focus to Flood Hazard Reduction	As part of the Rivers Section's efforts to revise its program to aid in the conservation and recovery of listed species, it is anticipated that a greater focus will be placed on non-structural alternatives to flood hazard reduction. The adopted Flood Hazard Reduction Plan recommended purchase of over 345 privately-owned structures with a history of significant flood damage. To aid in the conservation and recovery of listed species, however, the Rivers Section should seek additional funds so that efforts to purchase undeveloped riverine floodplains can be undertaken to the maximum extent possible. The inventory effort will allow the Rivers Section to develop new alternative recommendations for all county-maintained river facilities.	Conduct inventory, identify and secure needed funding.	N

Funding: F = Funded N = Not Funded

Early Action Matrix

Early Actions Related to County Services

Category	*Program/Action Name*	*Description*	*Short-Term Action Needed*	*Funding Status*
SOLID WASTE MANAGEMENT				
Policies	Surface Water Pollution Prevention Plans for Transfer Stations & Landfills	Impementation of Best Management Practices and monitoring to control quality of runoff leaving sites.	None - ongoing	F
Monitoring	Ground Water Monitoring	Ground Water Monitoring to insure that ground water quality is not adversely impacted from closed and active landfills. Groundwater which may ultimately recharge local streams and other water bodies is monitored.	None - ongoing	F
Monitoring	Construction and Demolition Debris Enforcement	Monitoring of CDL waste stream to insure it is appropriately directed and not illegally deposited where it could adversely affect water quality.	None - ongoing	F
Facility Maintenance	CH Landfill New Area Development and Closures.	Design, construction, operation, and closure of landfill capacity to insure that refuse is handled in a manner which will not adversely impact surface and ground water quality.	None - ongoing	F
Facility Maintenance	Puyallup/Kit Corner Landfill Investigation & Remediation	Groundwater and landfill gas remediation. Leachate management involves improved surface water runoff and controls. Improved stream conditions of a tributary branch of Hylebos Creek.	Planned work to be completed by March, 1999.	F
Facility Maintenance	Houghton Landfill Investigation & Remediation	Groundwater and landfill gas remediation. Leachate management involves improved surface water runoff and controls. No known benefits or impacts to salmonids noted.	Complete planned work at the site and continue monitoring improvements.	F
Facility Maintenance	Vashon Landfill Final Closure	Placing an impermeable cap over landfill and providing additional storm water detention. Stormwater facilities to be designed to Level 2 criteria as required in the latest King County Surface Water Manual. Level 2 criteria more stringent than what is required by the State Fisheries Dept. Landfill site discharges to tributary of Judd Creek.	Storm water facilities to be upgraded in 1999. Impermeable cap to be constructed in 2000.	F
Programs	Waste Reduction and Recycling Program	Waste reduction and recycling programs reduce the amount of wastes generated, thereby reducing potential impacts of disposal practices. Recycling can reduce the use of virgin materials used, reducing habitat impacts	None - ongoing	F
Programs	Moderate Risk Waste Program	Moderate Risk Waste Programs provide education and alternatives for the handling of moderate risk wastes. Thise wastes, if improperly handled can negatively impact habitat	None - ongoing	F

Funding: F = Funded N = Not Funded

Early Action Matrix

Early Actions Related to County Services

Category	Program/Action Name	Description	Short-Term Action Needed	Funding Status
WASTEWATER SERVICES				
Reclaimed Water	Expand existing reclaimed water programs at the Renton East Wastewater Treatment Plant.	Reclaimed water program will be expanded to supplying nearby commercial facilities with reclaimed water for process and irrigation use. King County will commit to partnerships with other local governments near the Wastewater treatment plant to provide irrigation water for parks and recreational facilities.	Ongoing.	F
Reclaimed Water	Expand reclaimed water service to the Green/Duwamish Corridor	Projects build on efforts to reduce potable water consumption such uses as new baseball stadium irrigation with ground/storm water and King Street Building using stormwater/groundwater for toilet flushing. Location of treatment facility and pipeline would allow for reclaimed water use to support future projects on Harbor Island through the reclaimed water pipeline crossing the Duwamish Waterway.	Ongoing.	F
Reclaimed Water	Evaluate technologies to reduce the cost of reclaimed water and technologies to meet freshwater quality discharge standards.	In order to take advantages of all reclaimed water opportunities, King County is exploring alternative wastewater treatment processes that could supply reclaimed water in more remote area and at lower costs. In addition, King County will be examining treatment processes that will produce reclaimed water quality suitable for use in streamflow augmentation or aquifer recharge, providing additional opportunities to meet the needs of habitat protection and enhancement	Ongoing.	F
Reclaimed Water	Evaluate satellite treatment plants as a component of the strategy for meeting water supply and environmental needs.	Project will develop criteria for identifying and selecting sites for satellite reclaimed water plants and recommending preferred sites in partnership with the regional stakeholders. The reclaimed water satellite facilities will initially provide water supply to reduce existing demands, leaving more water available for the streams. Plant expansion may provide for direct discharge for streamflow augmentation and aquifer recharge. Initiating stakeholder process to insure that the reclaimed water strategy is developed and implemented in consultation with interested parties.	Ongoing.	F
Reclaimed Water	Participate with the cities and water supply organizations to develop a regional water supply plan that serves as a guide to water supply needs and opportunities.	Continue to provide leadership on regional water supply planning. This plan will be a necessary first step to completing all of King County's reclaimed water commitments to early action for endangered species. We cannot proceed with developing reclaimed water until the water supply plan for King County is initiated.	Ongoing.	F
PARKS AND RECREATION				
Maintenance	Best Management Practices (BMP	The DPR is currently drafting a Request for Proposal to hire a consultant to create a manual in 1999 on Best Management Practices (BMPs) for the Maintenance and Facilities Division with employee training to follow in 2000.	Draft proposal.	N
Research	Compost as Fertilizer	The DPR Maintenance and Facilities Division is discussing a pilot research program with the King County Solid Waste Division to explore potential use of organic compost to replace the use of commercial fertilizer on park athletic fields.	Initiate project.	N
Code/Policy Changes	Guidelines for Development	The DPR and Department of Construction and Facilities Management is initiating the development of conceptual guidelines for future park natural areas and resource land development	Develop guidelines.	N
Code/Policy Changes	Review of Agreements	The DPR will review long term agreements to insure compatibility with salmon recovery and conservation issues.	Review agreements.	N

Funding: F = Funded N = Not Funded

Chapter 5 Addendum

Use of SEPA Authority to Reduce Impacts of New Development

Introduction

One of the early actions King County will undertake is an increased use of the State Environmental Policy Act (SEPA) to better protect salmon habitat. SEPA requires environmental review of proposals before an agency commits to a particular course of action. Under appropriate circumstances, SEPA also authorizes agencies to condition or deny a proposal in order to mitigate its environmental impact.

King County is rightfully proud of the progressive regulatory controls it has developed to protect the environment in general, and salmon habitat in particular. Nevertheless, in light of the decline of healthy, harvestable salmon runs in the Puget Sound region and the imminent listing of chinook salmon, King County will evaluate its use of substantive SEPA authority and impose additional conditions on proposals necessary to further protect salmon habitat. This use of SEPA substantive authority is consistent with existing County policies, does not require changes to the state SEPA law or the County's SEPA ordinance, and can be accomplished within the general framework of permit review already in place.

Additionally, the County will explore its authority under SEPA to propose changes to the County's SEPA ordinance to improve salmon habitat protection. The County will use this approach to protect salmon habitat as an interim tool, while it completes its long-term plan for recovery under the WRIA planning process.

State Environmental Policy Act (Ch. 43.21C RCW) and Implementing Rules (WAC 197-11)

First adopted in 1971, the State Environmental Policy Act (SEPA) provided Washington State's basic environmental charter, committing the state to the policies of environmental concern and protection. Modeled after the National Environmental Policy Act (1969), SEPA gives state agencies and local governments the tools to allow them to both consider and mitigate for environmental impacts of proposals. Citizens, tribes, and interested agencies are provided the opportunity by the governmental entity to comment in most review processes prior to a final decision affecting the environment.

SEPA contains a number of broad policy statements, but little specific direction. Over the years, various councils and commissions were created to develop guidelines and rules. SEPA Guidelines were first adopted in 1976 as Chapter 197-10 WAC. In 1984, the Guidelines were replaced with SEPA Rules, which were adopted as Chapter 197-11 WAC. These rules were designed to reduce paperwork and duplication and improve predictability and the quality of environmental decision-making. One significant change in the 1984 legislation and implementing rules was a requirement that in order for an agency or local government to rely on SEPA to make substantive decisions, it must adopt the policies that it will rely on to condition or deny development proposals.

More recently, amendments to the SEPA rules were adopted in 1995, to integrate requirements of the Model Toxics Control Act and the Growth Management Act, and in 1997, to address requirements of 1995 legislation, ESHB 1724, Regulatory Reform. The goal of ESHB 1724 was to establish new approaches to make government regulation more effective, and to make it easier and less costly for citizens and businesses to understand and comply with requirements.

SEPA is intended to provide information to agencies, applicants, and the public to encourage the development of environmentally sound proposals. The environmental review process involves the identification and evaluation of probable environmental impacts and the development of mitigation measures that will reduce adverse environmental impacts. This environmental information, along with other considerations, is used by agency decision-makers to decide whether to approve a proposal, approve it with conditions, or deny the proposal. SEPA applies to actions made at all levels of government within Washington State.

The SEPA Rules provide the basis for implementing SEPA, and establish uniform requirements for all agencies. By opening up the decision-making process and providing an avenue for consideration of environmental consequences, agencies and applicants are able to develop better proposals. Agencies may also deny proposals that are environmentally unsound.

Environmental Review Process

The environmental review process involves a number of steps that are briefly described below.

1. **Provide a pre-application conference (optional).** Although not included in the SEPA Rules, agencies may offer a process for the applicant to discuss a proposal with staff prior to submitting a permit application or environmental checklist. The applicant and agency can discuss existing regulations that would affect the proposal, the steps and possible timeline for project review, and other information that may help the applicant submit a complete application.
2. **Determine whether SEPA is required**. Determine whether environmental review is required for the proposal by (a) defining the

entire proposal, (b) identifying any agency actions (licenses, permits, etc.), and (c) deciding if the proposal fits one of the categorical exemptions. If the project does not involve an agency action, or there is an action but the project is exempt, environmental review is not required.

3. **Determine lead agency**. If environmental review is required, the "lead agency" is identified. This is the agency responsible for the environmental analysis and procedural steps under SEPA.
4. **Evaluate the proposal.** The lead agency must review the environmental checklist and other information available on the proposal and evaluate the proposal's likely environmental impacts. The lead agency and applicant may work together to reduce the probable impacts by either revising the proposal or identifying mitigation measures that will be included as permit conditions.
5. **Assess significance and issue a threshold determination**. After evaluating the proposal and identifying mitigation measures, the lead agency must determine whether a proposal would still have any likely significant adverse environmental impacts. The lead agency issues either a determination of nonsignificance (DNS), which may include mitigation conditions, or if the proposal is determined to have a likely significant impact, a determination of significance/scoping notice (DS/Scoping) is issued and the environmental impact statement (EIS) process is begun. The EIS will analyze alternatives and possible mitigation measures to reduce the environmental impacts of the proposal.
6. **Use SEPA in decision-making**. The agency decision-maker must consider the environmental information, along with technical and economic information, when deciding whether to approve a proposal. (RCW 43.21C.030(b)) Decision-makers may use SEPA substantive authority to condition or deny a proposal based on information in the SEPA document and the agency's adopted SEPA policies.

Categorical Exemptions

Categorical exemptions are types of projects or actions that are not subject to SEPA review. Proposals are categorically exempt because the size or type of the activity is unlikely to cause a significant adverse impact. (WAC 197-11-800(1) to (4)) Exemptions apply to minor construction activities and to some specific types of permits. Examples of exempt construction activities include construction of a single family dwelling, minor repair and maintenance, or minor road improvements. Examples of specific permit exemptions include issuance of business licenses, and some forest practice applications (Classes I, II, and III). The Legislature has also exempted some specific activities from the requirements of SEPA (statutory exemptions), such as water restoration projects under certain conditions.

Categorical exemptions do not apply if the project is a segment of a proposal that includes a series of related actions, some of which are exempt and

some of which are not; or if it includes a series of exempt actions that together may have a probable significant adverse environmental impact. (WAC 197-11-305) Exemptions may also not apply within an area designated as a critical area.

Categorical Exemptions – Flexible Thresholds

Most categorical exemptions use size criteria to determine if a proposal is exempt. The SEPA Rules allow cities and counties to raise the exemption limit for minor new construction to better accommodate the needs in their jurisdiction. The exemptions may be raised up to the maximum specified in the SEPA Rules (WAC 197-11-800(1)(c)). For example, cities and counties may choose to exempt residential developments at any level between 4 and 20 dwelling units. The exemption for commercial buildings can range between 4,000 to 12,000 square feet. These "flexible thresholds" must be designated through ordinance or resolution by the city or county. If this has not been done, the minimum level stands.

The exemption level set by the county or city will also apply when an agency other than the county or city is lead agency. A state agency or special district may need to consult with the county or city to identify the adopted exemption level for a particular area.

The exemptions for "minor new construction – flexible thresholds" *do not apply* if any portion of the proposal involves work on lands covered by water, if a license is needed for a discharge to air or water, or if a rezone is required. (WAC 197-11-800(1)(a) and (2))

Categorical Exemptions in Critical Areas

Cities and counties are required to designate critical areas under the Growth Management Act (GMA). Critical areas are wetlands, aquifer recharge areas, fish and wildlife habitat conservation areas, frequently flooded areas, and geologically hazardous areas. To ensure adequate environmental review of development within these areas, cities and counties may also designate in their SEPA procedures categorical exemptions that do not apply within each critical area. (Refer to WAC 197-11-908 for the list of exemptions that can be eliminated.)

If a project is not categorically exempt because it is located within a critical area, the environmental review is limited to:

- Documenting whether the proposal is consistent with the requirements of the critical areas ordinance;
- Evaluating any significant adverse environmental impacts not adequately addressed by the GMA planning documents and development regulations; and
- Preparing a threshold determination, and an EIS if necessary. (WAC 197-11-908)

Emergency Exemptions

An emergency exemption can be granted by a lead agency when (1) an action is needed to avoid an imminent threat to public health or safety, public or private property, or to prevent serious environmental degradation; *and* (2) there is not adequate time to complete SEPA procedures. Poor planning by the proponent should not constitute an emergency.

County SEPA Policies & Ordinances

Substantive authority and adopted policies/plans

The King County Council has exercised its authority under SEPA to adopt policies that may be used to exercise SEPA substantive authority (KCC 20.44.080). A wide range of county ordinances have been incorporated, including the King County Comprehensive Plan adopted pursuant to the Growth Management Act (KCC 20.12), Zoning Code (KCC Title 21A), Shoreline Master Plan (KCC Title 25), and Surface Water Runoff Policy (KCC 9.04).

For development proposals within the urban growth area identified pursuant to the Growth Management Act, the County limits the use of SEPA substantive authority. For a specific list of regulations set forth in the County ordinance, SEPA substantive authority is generally limited to the application of those regulations. In cases where specific adverse environmental impacts are not addressed by the regulations, or where there are unusual circumstances, site-specific or project-specific mitigation may be imposed (KCC 20.44.080C.)

For development proposals outside the urban growth area, if there is a determination that existing development regulations will not mitigate the significant adverse environmental impacts, additional mitigation consistent with county, state, or federal law may be required.

Categorical exemptions

Under SEPA and the implementing rules, local governments may increase the thresholds for some categorical exemptions. King County has made the following changes to the categorical exemptions:

- Up to eight dwelling units, from the minimum of four.
- Agricultural structures covering up to 30,000 square feet in agricultural zones, or 15,000 square feet in other zones are exempt. The minimum is 10,000 square feet.
- Office, school, commercial, and similar types of buildings of up to 12,000 square feet floor area with parking for up to forty cars. The state minimum is 4,000 square feet and twenty cars.
- Landfills or excavations of up to 500 cubic yards, except in sensitive areas where the maximum is generally 100 cubic yards. The state minimum is 100 cubic yards.

The SEPA rules allow a local government to determine that some categorical exemptions do not apply within critical areas governed by the GMA. (WAC 197-11-908). King County has not exercised this authority.

County SEPA Review Process

Review of private development proposals occurs at the County's Department of Development and Environmental Services (DDES). This department applies the County's SEPA provisions consistently, and is staffed with professionals who have a high level of technical expertise and a broad understanding of the SEPA process.

Through SEPA, King County is responsible for determining the probability of the project posing a significant adverse environmental impact based on the information in the environmental checklist and any additional information required, reasonably sufficient, to evaluate the environmental impact of a proposal. Mitigation measures are considered during this process to reduce the impact of the proposal so that it does not have an adverse impact on the environment.

For development proposals that are categorically exempt under SEPA, King County may still require sensitive area special studies to evaluate the proposal and its impacts on a sensitive area. DDES is authorized by KCC 21A.24.130 to require mitigation to protect sensitive areas and their buffers.

Other County departments act as the lead agency for SEPA compliance when they "sponsor" a County project. In addition, other public agencies outside the County government act as SEPA lead agencies when sponsoring proposals such as school district facilities, water or sewer district projects, and so forth.

Proposed Enhanced SEPA Review Process

Until King County can update its development regulations to provide enhanced protection for and conservation of habitat for salmon and other fish stocks listed as threatened or endangered under the Endangered Species Act, the County proposes to rely on its authority under SEPA to review and condition project proposals that will have an adverse impact on the conservation of these listed species.

King County is currently analyzing its existing regulatory authority to determine what changes to its development regulations are needed to improve their ability to assist salmon recovery. With the listing of Puget Sound chinook, and other salmon species as threatened under the Federal Endangered Species Act (ESA) a new set of permitting challenges emerges. In order to provide for the orderly and timely issuance of permits and approvals within unincorporated King County, the County will evaluate its current SEPA process and where deficiencies are identified, provide an enhanced review process that will provide a more rigorous science-based review of the potential impacts of development on threatened species and their habitats.

The proposed changes and budget request will be transmitted to the County Council to allow adequate time for legislative analysis and public input. It is anticipated that with the time needed for Council process and for hiring and training of staff, implementation of the enhanced SEPA review can begin in the fourth quarter of 1999.

Concurrently with the development of the Executive's regulatory changes, permit application processes and resource needs will be identified and a proposed supplemental budget request prepared.

The enhanced review process would screen selected development proposals to identify those that are likely to have an impact on salmonids. A checklist or questionnaire will probably be used to identify the potential for specific impacts. The screening process will determine if there is a need for additional scientific evaluation or studies which will be designed to determine the level of potential impact of the proposal on listed species and/or critical habitat.

The County's existing development regulations will be used to condition projects. Where the existing development regulations are not sufficient to mitigate the impacts identified by the studies, additional mitigation to reduce the impacts on the species and its habitat will be identified after analysis of the additional studies.

King County will also examine its roles and responsibilities as a lead agency as well as its process for environmental review of its own projects as a public works agency to ensure that in its own activities the County minimizes its impact on salmon habitat. The proposed process and timeline for this process is outlined in more detail in Attachment A.

Attachment A

Proposed Enhanced Review Evaluation Process

February 22, 1999

The Department of Development and Environmental Services (DDES) is responsible for issuing permits and approvals within unincorporated King County.

In order to address the listings of salmon under the Endangered Species Act, the County will conduct an evaluation of its permit review process and its implementation of SEPA to ensure that projects with a probable adverse impact on salmon receive appropriate review

The County will undertake the following process to implement this proposal:

- Identify the impacts that need to be addressed and establish criteria to identify the type of projects that need additional review
- Develop a list of mitigation options to reduce or eliminate the adverse impacts
- Identify interim regulatory changes that need to be made, if any, to be able to condition or mitigate problematic projects
- Review the permit process
- Evaluate Lead Agency Roles & Responsibilities
- Evaluate Public Project Process
- Determine county department resource needs

Identify Impacts and Criteria

King County will conduct an analysis, based on available information, to identify the types of projects that need additional scrutiny until updated development regulations can be adopted. The analysis will look at such factors as geographic location, size of a project, nature of a project, and other relevant factors.

Impacts of Concern

Impacts of concern to salmonids fall into one of three general categories: 1) impacts to the physical environment; 2) impacts to the chemical environment; and 3) impacts to the biological environment. (See Table 1) These general categories encompass the wide range of potential impacts to salmon, and are appropriate for considering the potential application of SEPA as an interim approach to compliance with ESA requirements.

Existing King County requirements, particularly the Environmentally Sensitive Areas Ordinance (SAO) and the Surface Water Drainage Manual

(SWDM), provide a comprehensive level of protection for the County's natural resources. Review of current County requirements indicates that nearly all of the impacts of concern to salmonids are addressed to some extent by existing County development requirements. The areas of potential concern relating to ESA compliance (e.g., where additional regulatory scrutiny may be appropriate) largely fall into one of three areas: Exemptions/variance; mitigation requirements; or monitoring requirements.

1. Exemptions/variances

A number of existing exemptions and/or variances allowed by the SAO and/or the SWDM may result in impacts to salmonids. These exemptions/variances are briefly described in the attached table, along with a general description of existing regulatory thresholds. Additionally, "emergency" exemptions will be evaluated. As an interim measure, SEPA could be applied in selected areas to lower existing thresholds when potential impacts to threatened or endangered species could occur.

2. Mitigation requirements

The SWDM notes: "Compliance with this manual should not be construed as mitigating all probable and significant stormwater impacts to aquatic biota in streams or wetlands, and additional mitigation may be required" (p. 1-15). SEPA could be used to strengthen mitigation requirements when existing regulations do not completely or comprehensively address mitigation to protect listed salmonids. The following table summarizes potential options for mitigation to be explored in greater detail over the next several months. A list of mitigation measures specifically tied to impacts of concern will be developed over the next few months with input from County and resource agency staff.

3. Monitoring requirements

SEPA could be used to strengthen post-development monitoring requirements, which would help to determine the effectiveness of newly implemented controls. The SEPA ordinance could be modified or amended to require performance monitoring of mitigation measures as part of the SEPA process, or conditions could be imposed requiring performance monitoring.

The County will conduct an analysis of the types of impacts that are of concern. The types of impacts that may be considered include at least the following: water temperature, dissolved oxygen, stream flows, turbidity, and buffer degradation. In addition, there will be a review of the physical components of the environment conducive to salmon protection, including channel structure and morphology.

Develop Criteria

Once the types of impacts are identified, the County will develop a set of criteria to determine the types of projects which can most effectively be regulated through SEPA review to provide habitat protection and which can more effectively be regulated through other means.

Product: A draft report identifying the impacts of concern and criteria to determine which types of projects may need additional review based on the specified impacts. These projects would then be subject to conditioning or mitigation based on known information.

Mitigation Options

Based on the impacts identified in the previous Analysis of Impacts and Criteria, the County will develop a suite of mitigation options or permit conditions that could be used to address specific impacts and promote recovery. It is anticipated that this suite of mitigation options will facilitate permit processing and provide applicants with information in which to better design their projects prior to application submittal.

Product: A draft matrix that identifies a suite of mitigation options for specific impacts on salmonid habitat. An example is provided as Table 1.

Regulatory Changes

Based on an analysis of its existing development regulations and SEPA processes, amendments to King County codes may be developed to provide the necessary authority for more stringent review of projects that could have an adverse impact on salmon. This may include an evaluation of the County's categorical exemptions.

Product: Draft proposed code amendments.

Permit Process

The County will evaluate its project review process and establish revised project review procedures to ensure that projects with the potential for impact on salmon receive the appropriate level of review. Based on the criteria developed to identify projects that may require additional scrutiny, a project applicant may be required to complete a questionnaire. The questionnaire will assist the applicant in determining what additional studies and additional information will be needed.

In its review of projects, the County will consider alternative approaches for review, such as establishing an interdisciplinary team to assess projects with a potential for an adverse impact on salmon habitat. The team could consist of staff experts from different agencies or of staff within a single agency – most likely DDES.

Product: A draft report that summarizes the revised permit process from pre-application to permit issuance and monitoring.

Lead Agency

Under SEPA and King County's SEPA procedures, a public agency proposing to undertake a project may act as the lead agency under SEPA to evaluate the environmental impacts of the proposal. Public agencies include other governmental entities, such as school districts, public utility districts, cities, port districts, and sewer and water districts. King County will convene a meeting of the appropriate public agencies to evaluate the current process and its effectiveness in protecting against adverse impacts to salmon.

Product: Draft Report evaluating existing roles, responsibilities and processes and recommendations for improvement.

County Projects

King County departments proposing development actions subject to SEPA act as the lead agency under King County's procedures. As a result, SEPA review of county projects is spread throughout a variety of agencies. This may lead to inconsistency in the level of analysis. King County will evaluate the process it uses to conduct environmental review of development proposals by County departments and explore ways to ensure that environmental review and conditions imposed on development are consistent with the need to protect salmon habitat.

Product: Draft report evaluating existing process for environmental review of King County-sponsored projects and recommendations to improve the process, if any, including identification of resource needs and proposed budget request.

Resource Needs

King County will evaluate is current staff resources and provide either for adjustments in responsibilities or for hiring additional staff to conduct the enhanced review. King County also will explore the possibility of using outside professionals where appropriate.

The costs of the enhanced SEPA review process will partially be recovered through fees paid by the project applicant.

Product: Draft proposed Supplemental Budget Request including proposed changes to the Fee Ordinance if required.

Report and Recommendation

All draft reports will be reviewed and a final Executive Report and Recommendation for an Enhanced Review will be prepared and transmitted to the King County Council for approval.

Table 1. Impacts, Available Strategies and Possible Approaches to ESA Response

Impacts to Physical Environment

Impact	Current Regulatory Threshold	Areas for Potential Re-evaluation	Mitigation Options
Creates new impervious area	King Co. S.W.M. Design Manual: • 5,000 sf of new impervious surface • 2,000 sf in landslide hazard drainage area • 7,000 sf in rural zoned area subject to clearing limits • Up to two acres/35% of total site	• Single-family residences adding less than 5,000 sf • Rural development currently falling below threshold in critical drainage areas • Cumulative impacts from single-family residences • Slowly-infiltrating surfaces (vs. impervious surfaces)	• Reduce effective impervious area • Increased use of infiltration systems for all types of projects • Increase retention/detention requirements • Revise exemption criteria
Increases peak stream flows	• King Co. S.W.M. Design Manual requirements vary based on existing conditions	• Exemptions may need to be revisited to address downstream cumulative impacts • Overall volume impacts to streams and salmonids (as opposed to peaks and duration) • Discharge into wetland or stream buffers; may be affecting spawning or rearing habitat	• Limit flow rates to levels lower than pre-development conditions • Perform more comprehensive cumulative peak flow evaluation • Increased post-development monitoring
Reduces groundwater recharge	• King Co. S.W.M. Design Manual requirements for flow control • Requires three feet of permeable soil between bottom of facility and maximum wet-season water table	• Infiltration system feasibility in soils with marginal permeability	• Increased utilization of infiltration systems: unlined bioswales, "leaky" wetlands, etc.
Creates barriers or obstacles to fish passage	• King Co. S.W.M. Design Manual requirements based on flow capacity	• Fish passage requirements may not be provided for all life stages of fish	• Remove existing barriers • Design culverts to allow juvenile passage upstream/downstream
Increases potential for erosion/sedimentation	• King County Erosion and Sediment Control standards • SAO steep slopes, landslide, and erosion hazards	• Flexibility in compliance for road/utility projects may warrant review • Some construction practices may be largely uncontrolled	• Design of erosion/sedimentation controls to further reduce off-site sediment transport • Intensified requirements for construction monitoring

Impacts to Chemical Environment

Impact	Current Regulatory Threshold	Areas for Potential Re-evaluation	Mitigation Options
Contributes to reduction in levels of dissolved oxygen in receiving waters	King Co. S.W.M. Design Manual: • No specific requirements for dissolved oxygen • Lowered threshold for runoff to resource streams, sensitive lakes, or sphagnum bogs • Exemptions for water quality requirements for areas with < 5,000 square feet pollution-generating impervious surface	• No specific requirements for streams or water bodies sensitive to low dissolved oxygen	• Increase enforcement of Clean Water Act: seasonally limit dissolved oxygen-demand in runoff to sensitive water bodies • Increase post-development monitoring requirements
Contributes to increased stream temperatures during warm periods of the year	King Co. S.W.M. Design Manual • No specific requirements for dissolved oxygen • Lowered threshold for runoff to resource streams, sensitive lakes, or sphagnum bogs • Exemptions for water quality requirements for areas with < 5,000 square feet pollution-generating impervious surface	• No specific requirements for streams or water bodies sensitive to seasonal temperatures • Exemptions for surface area	• Review impervious area exemption • Riparian zone buffer revisions (see Physical Environment) • Comprehensive, system wide evaluation of temperature impacts • Increase post-development monitoring requirements
Contributes toxic metals, organic constituents, or other compounds such as soaps to receiving waters	• King Co. S.W.M. Design Manual controls limited to zinc	• No requirements for other metals, organic constituents, soaps • Use of hazardous substances, pesticides, and fertilizers near water bodies or salmon habitat • Unregulated use of soaps • Use of metal drainage system components	• Expand water quality requirements to include copper, lead, organic constituents, and soap • Increase post-development monitoring requirements

Impacts to Biological Environment

Impact	Current Regulatory Threshold	Areas for Potential Re-evaluation	Mitigation Options
Reduces riparian habit	SAO buffer zones: • 100 feet for Class 1 stream • 100 feet for Class 2 stream with salmonids • 50 feet for Class 2 stream • 25 feet for Class 3 stream • Special designations for Bear Creek	• Reduction of buffer widths for Class 2 streams through variances • Tree removal outside buffer zones but within riparian corridors • Exemptions for agriculture, utility and road activity, maintenance, and home additions	• Buffer zone widths more closely tied to ecological functions and values • Revisit exemptions to provide more comprehensive protection of buffer zones • Define reference points and mitigation performance standards • Define reference points and performance standards to incorporate scientific findings
Alters channel shape and form	Exemptions: • SAO stream development requirements • SAO floodway requirements	• Absence of performance standards for mitigation of impacts to channel shape and form, flow regime, floodplain corridors • Ditch maintenance that may alter channel	• Revisit exemptions and variances to limit stream crossings • Provide additional monitoring requirements
Alters in-stream habitat	• SAO stream development requirements • Indirect impacts addressed by peak flow requirements in S.W.M. Design Manual	• Exemptions for agriculture, maintenance activities • Inter-species interactions not addressed • Intra-species interactions not addressed • Stream crossing through or over salmonid habitat • Bank stabilization to protect existing or permitted structures	• Increased limitations on stream crossings • Revisit exemptions, partial exemptions, and increased limitations • Develop reference standards and performance requirements for mitigation
Reduces wetlands	SAO wetland buffer requirements: • Class 1 wetland shall have 100-foot buffer • Class 2 wetland shall have 50-foot buffer • Class 3 wetland shall have 25-foot buffer Permitted alterations: • If wetland does not provide valuable functions • No practical alternative • No significant adverse impacts	• Currently no distinctions for wetlands that provide fish habitat • Breakdown for wetland types currently not addressed • Exemptions, encroachments into wetland buffers	• Increased characterization of wetland type according to function • Increased protection for wetlands providing fish habitat • Revisit exemptions and variances to provide more comprehensive protection of wetland values and functions